Scientific American

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. XIV. NEW YORK, JUNE 11, 1859. NO. 40.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY
At No. 37 Park-row (Park Building), New York,
BY MUNN & CO.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Responsible Agents may also be found in all the principal cities and towns of the United States.

Single copies of the paper are on sale at the office of publication, and at all the periodical stores in this city Brooklyn and Jersey City.

Sampson Low, Son & Co., the American Booksellers, 47 Ludgate Hill, London, Eng., are the British Agents to receive subscriptions for the SCIENTIFIC AMERICAN.

TERMS—Two Dollars per annum.—One Dollar in advance, and the remainder in six months.

☞ See Prospectus on last page. No Traveling Agents employed.

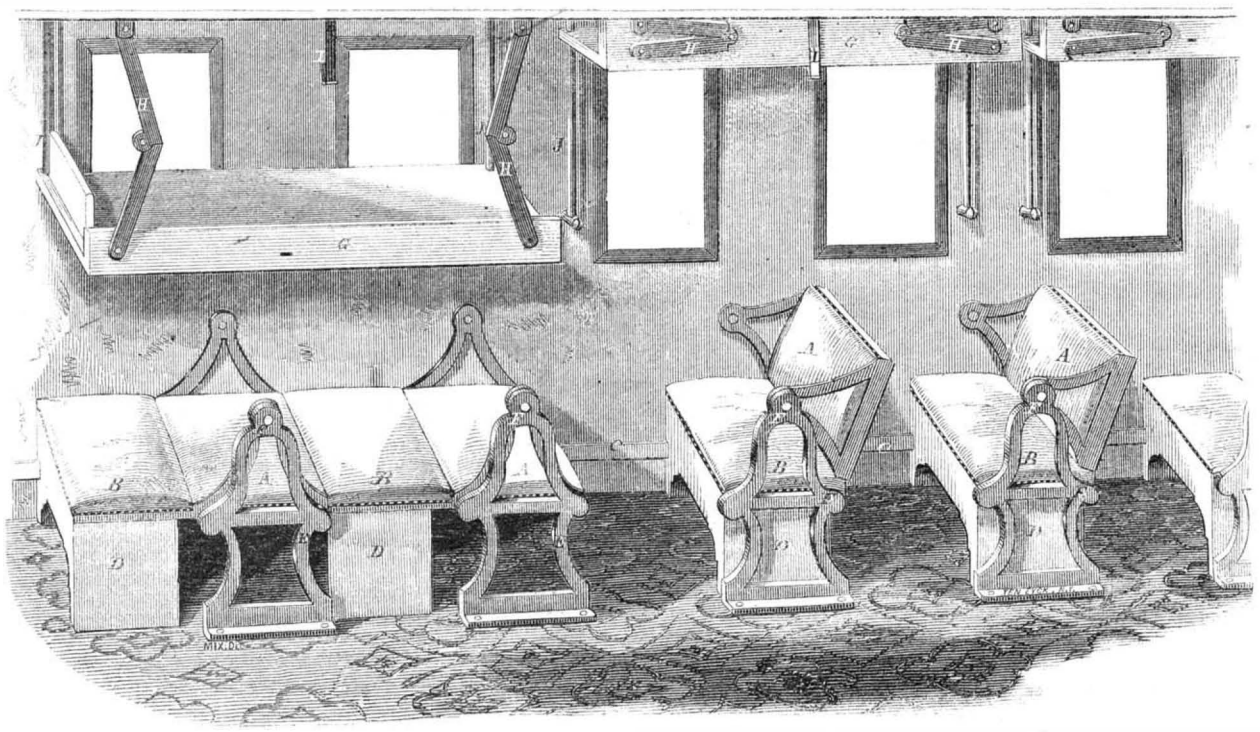
Transmundane Telegraph.

A bill has passed the Canadian Parliament for the establishment of a company to connect Europe with America by telegraph lines running to the North-west of our continent, thence through Behring's straits by a short submarine cable, and then through the Russian territories down to Northern Europe. While the bill was under discussion Mr. McMicken, one of the members, who is a practical electrician, asserted that a long submarine cable through the Atlantic never could be made to operate, and the reason which he advanced in support of this assertion is certainly novel. He said "he was perfectly satisfied that the Atlantic Telegraph could never work with a single wire. He was fully convinced that there was not a breech in that cable. The difficulty in the matter was this, that the magnetic pole which was the natural battery of the earth was nearer to one end of the cable than the other, and a cable of the length of the Atlantic Cable could not be made to work without a return line of wire. This might be a new idea, but he was satisfied it was a correct one. The way in which to make the Atlantic Telegraph work was to lay another cable alongside the one already laid down."

Our opinion differs entirely from that of the Hon. member. We are confident that the whole difficulty in telegraphing through a long submarine cable is that it becomes charged with *inductive* electricity which resists the passage of the main current. As "facts are sturdy things which cannot be refuted," it is only necessary to state in proof of our assertion that the same obstruction in degree, though not in quantity, has been experienced on all submarine cables, as in the case of the Atlantic. The cable of 300 miles long in the Mediterranean has often ceased to operate owing to inductive electricity, while no such obstruction has been found in land-lines of the same length.

A LARGE ORGAN.—The great organ in St. George's Hall, Liverpool, is one of the marvels of musical mechanism. It has four rows of keys comprising sixty-three notes; and two octaves and a half of pedals, comprising thirty notes. There are one hundred and eight stops, and eight thousand pipes varying in length from thirty-two feet to three-eighths of an inch. The grand source of wind is two immense bellows, each having three feeders placed in a vault below the floor of the hall. These are blown by two cylinder-oscillating steam-engines. There are, besides, twelve other bellows or reservoirs, each giving its own appropriate pressure of air to those stops or pipes which it supplies.

JACKSON'S SLEEPING CAR.



Do any of our readers recollect the vexation and ill nature which had possession of them when prevented by time, circumstances, or individuals, from taking a nap at the very moment when Morpheus, in a gentle and insinuating manner is trying his best to "steep your senses in forgetfulness." If they do, that vexation and expression of disgust should, slightly intensified, be poured forth on those railroad companies who do not provide their passengers with sleeping cars, for they have no excuse, as there are plenty to choose from to suit every taste and all emergencies, and should any company say they have not seen the one they should like to adopt, we take great pleasure in introducing them and the public to the arrangement invented by W. R. Jackson, of Baltimore, Md.

Our illustration shows the inside of a car arranged for day and night, the backs, A, which are reversible, swinging on pivots, one in the side of the car and the other in the rail, F. The seat, B, is mounted in a frame, D, which can slide on the way, C, on the side of the car, and they can be secured as seats by small bolts and catches. Two seats accommodate two persons sleeping, and a bed, G, is suspended from the roof by hinged rods, H, so that it can be placed out of the way, and this holds two other persons lying down.

The change from seats to sleeping berths is quickly effected, the bottoms, B, and frames, D, being drawn out, the backs, A, are allowed to swing down between them, and the spring catch, I, being released, the berth, G, descends, being guided at the back and supported by rods, J, passing through it. By placing this seat in a line parallel to the side of the cabin, or saloon, it will answer remarkably well for a vessel, obviating the necessity of building berths and giving much more room in the day-time, a great desideratum on board ship.

The inventor of this simple and ingenious method of changing day-seats into sleeping-couches and berths will give any further information upon being addressed as above. The patent is dated April 12, 1859.

Remedies Against the Curculio.

There is no more destructive pest to our fruit than the insect known as the curculio. To the delicious plum, nectarine and apricot, they are deadly enemies, and destroy these fruits before they are half grown. Its ravages on the peach are almost as great, though not as entire, from the fact that it ripens with the worm in it, which eats away the inside, leaving the outside looking perfectly sound, and thus deceiving the purchaser. The *Cincinnatus* gives the following as the best remedies for it, and which our agricultural readers may like to try:—

To one pound of whale oil soap, add four ounces of flour of sulphur. Mix thoroughly and dissolve in twelve gallons of water. To one half-peck of quick lime add four gallons of water, and stir well together. When fully settled pour off the transparent lime water, and add the soap and sulphur mixture. Add to the same, also, say four gallons of tolerably strong tobacco water. Apply this mixture, when thus incorporated, with a garden syringe, to your plum or other fruit trees, so that the foliage shall be well drenched. If no rains succeed for three weeks, one application will be sufficient. Should frequent rains occur, the mixture should be again applied till the stone of the fruit becomes hardened, when the season of the curculio's ravages is past.

Another: To six pounds of the flour of sulphur take a peck of unslaked lime, slake together in a barrel, pouring upon these ingredients enough hot water to cover them. Then fill the barrel, stirring the mixture. This solution apply to the tree with a syringe. When washed off by heavy rains, renew while the curculio continues its ravages.

Another method has been adopted with success, which is to make your plum-orchard your poultry yard or piggery. Shaking the trees daily upon a canvas thrown on the ground, and destroying what you can, has proved successful; but this is too tedious and expensive to be practicable.

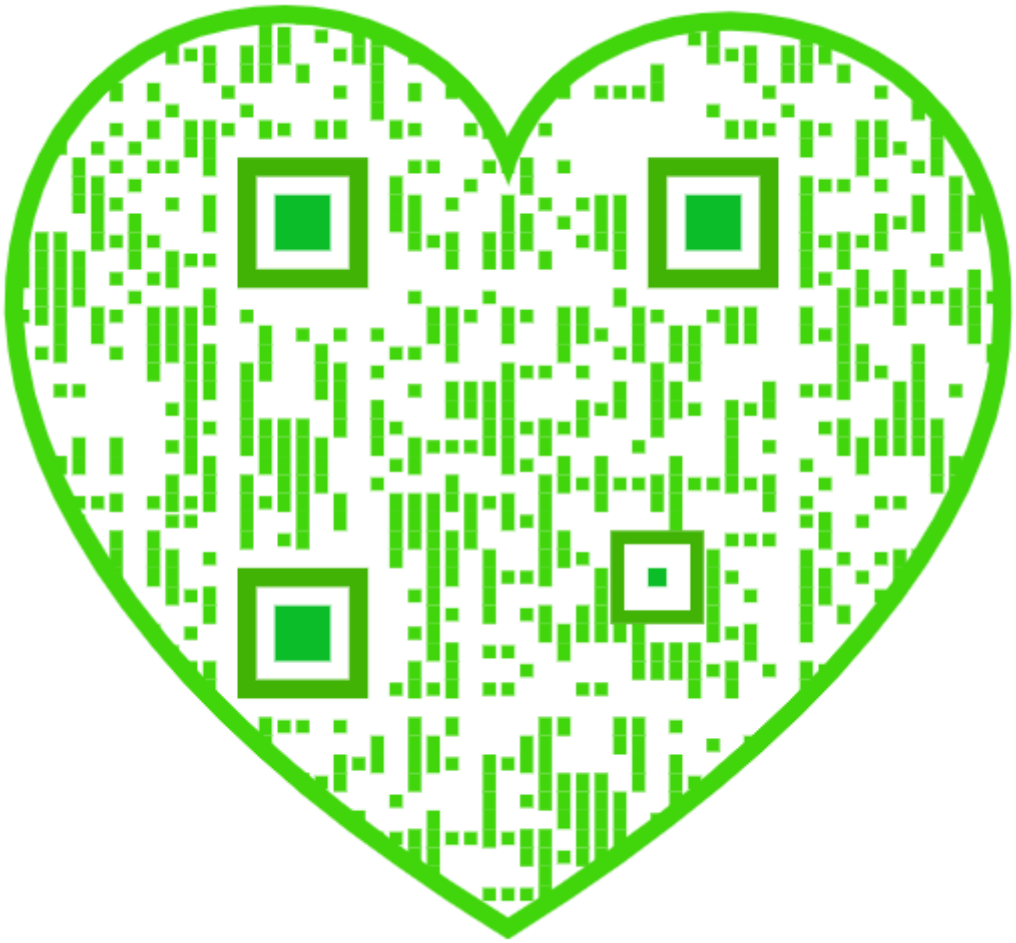
Sulphur in Coal.

The presence of sulphur in fuel is not only deleterious in a mechanical, but in a chemical point of view, for while the unequal expansion of the pyrites (in which form sulphur usually appears in coal) and carbon causes the latter to split and crack and fly into small pieces, the combinations which sulphur makes with oxygen are very destructive to boilers or any metal that may be in contact with them. It is therefore of the utmost importance to manufacturers who use large quantities of coal, to have a quick and easy method of discovering the presence of this destructive agent. To enable them to perform this analysis for themselves we give the following directions:—The coal must be finely powdered and fused in a crucible, with three times its weight of nitre and four times its weight of carbonate of soda. The fused mass must then be dissolved in water and a few drops of a solution of chloride of barium added, when, if there is a little sulphur, the whole will appear milky; but if there is a great quantity—too much, in fact, to use—a heavy white precipitate will fall down and show that the coals are not fit for use.

INSECT MACHINERY.—A correspondent suggests that inventors might learn much and get many ideas by studying the mechanism with which insects perform their work, for example the spinning of a thread by the caterpillar and the boring-fly, which by means of two slender looking hair-like projections bores into wood to deposit its eggs. There is much to be done in the imitation of animal machinery which is the most economically constructed of any, there never being a muscle or bone or tendon too much, or out of place, but the whole always works perfectly and with ease.

IRON POWDER.—In Austria, iron is reduced by grinding to a very fine powder and used as a medicine, it being found superior to the carbonates or oxyds of iron, which are much used by our physicians.

© 1859 SCIENTIFIC AMERICAN, INC



Issued from the United States Patent Office

FOR THE WEEK ENDING MAY 31, 1859.

[*Reported officially for the Scientific American.*

*** Circulars giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

SPRINGS FOR RAILROAD CARS—George M. Alsop, of Philadelphia, Pa. : I claim, first, The method or arrangement of inclosing an air-tight vessel filled with air, in a box or chamber, with a flexible water-proof cover, or diaphragm, and surrounding the air vessel with water, or some other suitable fluid, substantially as described and for the purpose set forth.

Second, I claim the arrangement of the convex steel plates, B', which are divided into radiating leaves, or segments, connected together at the center, whose outer edges or periphery rest upon and slide on the metal ring, or plate, b, and in the recess in the bottom of the top, A', the whole being arranged as described for the purpose of forming a flexible metallic support or covering to the diaphragm, to prevent its being strained or ruptured, substantially as set forth.

Third, I claim the combination and arrangement of the piston, D, its elastic cushion, E, the flexible steel plate or plates, B', metal plate or rings, b b, and the diaphragm, B B', the whole being arranged and combined substantially as described and for the purpose set forth.

SEED PLANTERS—C. F. Anderson, of Charlestown, N. H.: I claim the ratchet-shaped projections, d e, in the hub, H, of wheel, B, and on the disk, K, of the tube J, in connection with the tube, L, provided with the spiral and straight grooves, f g, in which the projection, h, of the tube, j, is fitted; the tube, L, having the side lever, M, attached, and also the catch, i, the whole being combined and arranged to operate as and for the purpose set forth.

[The object of this invention is to place the seed-distributing device under the complete control of the attendant, so that the dropping of the seed may be checked or prolonged to greater or less intervals, to insure the even dropping in check-rows. Another object is, the proper distribution of a fertilizing material, so that the same may be deposited in the earth with the seed with certainty, the choking or clogging of the fertilizing material being effectually prevented.]

STRAW CUTTERS—Ensign Baker, of Fredonia, N. Y.: I claim, first, The employment or use of the leger knife, J, provided with the hook, a, actuated by the cam, F, and used in connection with the knives, E E, attached to the wheel, D, and provided with the hooks, G G, to operate substantially as and for the purpose set forth.

Second, The arrangement of the crank, H, spring, L, with rack, d, attached, and the ratchet, c, on the shaft of the feed-roller, K, substantially as shown, to feed the stuff intermittently to the knives, as described.

[This invention consists in the use of a cutter-wheel and leger knife, in connection with a knife-lock and a feeding device arranged to operate automatically, conjointly with the cutting device. By this combination a very efficient straw-cutter is obtained, and one well adapted to general use.]

TOBACCO PRESSES—John A. Bawsel, of Powhattan Court House, Va.: I claim, first, The use of the follower, B', fitting into the groove of the opposite roller, substantially as set forth.

Second, I claim the springs, S, as constructed and operated for guiding the tobacco and straightening the leaves as they pass between the rollers, substantially as described.

Third, I claim the use of the treadle, H, in combination with the springs, S, and with the rollers, B and C, operating substantially as described, for separating the tobacco from the springs, S, and also for separating the rollers, as set forth.

Fourth, I claim the oil-cup, O, and roller, V, in connection with groove, r, for oiling the groove and the tobacco, substantially as described.

ELEVATORS FOR HOISTING GOODS IN WAREHOUSES—Albert Betteley, of Boston, Mass.: I claim so arranging and combining a rider, t, with a brake, by the means described, or their equivalents, as to operate on a drive-pulley to check or prevent its rotation whenever the driving-belt breaks or is removed.

FREIGHT CARS—Joseph D. Billings, of Rutland, Vt.: I claim placing a metal shoe, single or continuous, between the studs or sheathing-boards and sills of railroad cars, for excluding the water, and thereby preventing the rapid decay of the same, substantially as set forth.

[In the present mode of constructing freight cars, the vertical ties are morticed into the sills, or, when the car is "closed in," the planks are tongued and grooved into the sills. On account of the decaying of the timber at these joints by the absorption and retention of moisture, this method is decidedly objectionable. This invention consists in the employment of a metal shoe, having projecting pins on its under side, and this forms the connection between the sill and tie.]

WRENCH—John W. Brewster, of Stamford, N. Y.: I claim as a new article of manufacture, a wrench, having a six-sided handle, A, stationary jaw, B, and sliding jaw, C, with apertures, c, of the precise form shown, and the article being otherwise made as set forth.

[There are a class of wrenches in which an adjustable or sliding jaw is employed in connection with a stationary one, in order that the implement may be adjusted to suit nuts of various sizes. This invention is an improvement on such wrenches, and consists in a novel construction of the handle of the implement, together with the sliding or movable jaw, whereby the latter may be adjusted and secured at any desired point, without the intervention of cams, pawls, or other special devices.]

MACHINE FOR PUNCHING METAL—Jay H. Brown, of Grand Ledge, Mich.: I claim the application and use of the bars, I I, in combination with lever, L, punching-bar, E, fruste-conical rollers, o, o, o, o, etc., rod, G, and spiral (or equivalent) spring, S, for the purposes specified, the whole being constructed an arranged substantially in the manner as described and set forth.

PUMP GEARING—Jno. P. Carr, of Mattapoisett, Mass.: What I claim, and to what I confine myself, is the device, as set forth and described, for operating pumps on board of ships and in other places where said invention may be useful.

STOVES—Fred'k Bucher, of Columbia, Pa.: I claim, in combination with the fire-cylinder, the double radiators, h, each inclosing an interior chamber and register, so that the draft may be direct, or checked at pleasure, in its passage through the stove, by which means I obtain much radiating surface, and economize much fuel, the whole being arranged substantially as represented.

JOINER'S CLAMP—John Clackson, of Milford, Pa.: I claim the clamp formed of the bar, A, with the jaws, D, F, constructed, arranged and fitted on it, substantially as described, to form a new and improved article of manufacture.

[The object of this invention is to obtain a clamp that will be perfectly stiff and firm, and one that may be more readily manipulated than those of usual construction. The clamps, as hitherto constructed, when in use and screwed up tight, are very liable to bend the guide-bar, and are not, unless made very heavy and cumbersome, sufficiently stiff and firm, but by the peculiar manner in which the jaws are arranged on the guide-bar in this invention, these inconveniences are conquered.]

COMPOSITION FOR PENCILS—E. P. Clark, of Holyoke, Mass.: I claim the composition for pencils for indelible writing, made by combining nitrate of silver, with the several other ingredients herein specified, substantially in the manner and about the proportions set forth.

[The marking inks so commonly used for marking linen or other fabrics are inconvenient and troublesome, each bottle being accompanied by a number of "directions," which considerably bother the brains of housekeepers. This pencil will prevent all this, as all the preparation necessary is the damping of the fabric which is to be marked, when the pencil, which is composed of nitrate of silver, nitric acid, glue, lampblack and sugar, will leave an indelible mark thereupon.]

MACHINE FOR GRINDING SAWS—Wm. Clemson, of East Woburn, Mass.: I claim the elliptical bearings, a, a, lever, L, and double gearing, F, F, and G, G, in combination with the adjustable bearing-plates, D, D, when all are arranged substantially as and for the purposes specified.

[On page 310, Vol. XIII., SCIENTIFIC AMERICAN, we gave a description of a saw-grinding apparatus patented by this inventor, and the present invention is an improvement upon it. The present invention consists in arranging the top roll upon the frame so as to produce the requisite degree of pressure upon the saw in grinding by the weight of the roll, and in adjusting the roll to the surface of the saw to be ground.]

CHURN—Jacob Closs, of Decatur, Ind.: I claim the use of the screw dashers, D, E, constructed and operated as set forth, in connection with the wings, F, F, as specified.

CORN CRUSHERS—T. B. Coursey, of Fredrica, Del.: I claim the employment or use of the serrated flanches, F, F, placed obliquely and eccentrically on the shaft, B, in combination with the crushing-heads, C, D, and shell, A, substantially as and for the purpose set forth.

[One or more serrated flanches are attached to the shaft of an ordinary corn and cob mill, so that the flanches or saws will perform the double function of crushers and feeders, first cutting or crushing the ears of corn and then crowding or pressing them down between the conical crushers and shell, to be still further reduced.]

GAS REGULATORS—E. Hall Covel, of New York City: I claim, first, The combining of the rotory pump, or air-forcer, with the air-receiver and its fluid valve arrangements, in the manner set forth, whereby the one controls the action of the other, and through their joint action the charging apparatus is controlled, substantially as described.

Second, I claim connecting the commingling chamber of the charging apparatus with the air-receiver, for the purpose set forth.

HYDRO-CARBON VAPOR APPARATUS—E. Hall Covel, of New York City: I claim, first, Constructing the apparatus for the purposes set forth, of detachable parts, or chambers, substantially as described.

Second, I claim the arrangement of the feed pipes, or tubes, and outlet pipes, whereby I am enabled to pass in the material to any one of the chambers, or to let out material, and to examine the interior while the apparatus is in operation, and the process of charging going on, as set forth.

RAILROAD CAR TRUCKS—G. F. Decker, of Scranton, Pa.: I claim the axles, B, of a truck, in separate or independent frames, b b, attached to the bed-piece, a, as shown, and connected by a spring, or flexible plate, e, and used in connection with the sprine, C, arranged substantially as and for the purpose set forth.

[The object of this invention is to allow the axles of the wheels to have an independent movement of each other, so that in passing over curves they may assume radial positions, or form radii of the curve, thereby allowing the trucks to pass over the curvatures with much less friction than usual, and without subjecting the axles to the great strain consequent on the ordinary mode of construction.]

HAND LEVER—Edward J. Durant, of Lebanon, N. H.: I claim combining the forked shaft, a, with the sliding head-piece, b, the intermediate lever, c, and the hand-lever, d, in such a manner as to form a compound leverage car-mover, that can be operated substantially as set forth.

CULTIVATORS—Celestin Eastburn, of Spencer County, Ky.: I claim the arrangement of the plows, D, wheel, F, block, J, spring, I, and rake, H, as set forth and described for the purposes specified.

MACHINERY FOR CRUSHING AND MIXING SUGAR—Fred. Ebelin, of New York City: I claim, first, The reciprocating plunger, p, acting on the sugar-loaf, in combination with the revolving cutter-head, c, in the manner and for the purposes substantially as specified.

Second, I claim the support, r, and latch, s, actuated as set forth, and acting to drop one loaf of sugar at a time from the hopper, so as to be pressed forward by the plunger, p, as set forth.

Third, I claim the sliding-bar, o', fitted with the incline, 15, in combination with the pins, 10, on the wheel, m, and the weight, o2, or its equivalent, for drawing back the plungers, p p, in the manner and for the purposes specified.

Fourth, I claim the revolving mixers, y y', constructed with slats, z z, between the heads, in the manner and for the purposes set forth.

MACHINES FOR DRYING FIBROUS SUBSTANCES—Jeremiah Essex, of North Bennington, Vt.: I claim the manner herein specified of guiding an ascending and descending endless apron, by the pulley, d d, or their equivalents, acting on the edges of said endless apron, in the manner and for the purposes specified.

LOOMS FOR WEAVING PLAIDS, ETC.—Merrill A. Furbush and George Compton, of Worcester, Mass.: We claim the employment of two sets of ratchet-wheels and appendages, each set consisting of reversed ratchets, substantially as described, in combination with two sets of cams and two series of shuttle-boxes, substantially as and for the purpose specified.

And we also claim two sets of reversible ratchets and appendages, the two sets of cams, and two series of shuttle-boxes, substantially as described, in combination with one pattern-chain or cylinder, in manner substantially as and for the purpose specified.

WASHING MACHINE—Geo. Geer, of Uniontown, Ill.: I claim a washing machine, provided with a lever, I, cylinder of rollers, F, clutch, j, endless belt, B, adjustable levers, C C, made as set forth, and otherwise constructed as shown, so that by shifting the lever, I, the motion of the belt will cease, and hold the clothes at rest beneath the rotating cylinder of rollers, F, and so that the belt, B, may be loosened or tightened when desired, by shifting the levers, C C, as specified.

[A rotating cylinder of rollers is employed in this invention in connection with an endless apron, having rollers within it; the whole being placed in a suitable box, it forms a good and convenient washing machine.]

TANNING LEATHER—Jacob Gove, of Milford, N. H.: I claim giving to the liquor, or tanning fluid, in the vat, a rapid motion, commencing across the bottom of the vat and under the suspended hides, for the purpose set forth.

CONSTRUCTION OF PINS FOR SECURING ARTIFICIAL TEETH—John Hassell, Jr., of Newark, N. J.: I claim the splint-pin, used double or single, half round or flat, for the purposes set forth, and substantially as described.

MEAT CUTTER—Henry Havell, of Newark, N. J.: I claim, first, The hook-pointed rotary knives, E e, arranged in the described relation to the hopper, F, for the purpose explained.

Second, The combined arrangement of the stationary curved knives, C C', latitudinal grooves, d, and rotary knives, E, substantially as and for the purposes set forth.

RETORTS FOR DISTILLING COAL OILS—Robt. W. Hazlett and John H. Hobbs, of Wheeling, Va.: We claim, first, Constructing the horizontal retort with a pan or flat-shaped base, A, and inclined upper sides or top, B B, and with open conduits or gutters, b b, running from end to end of the retort, and arranged on the inner sides thereof, and set inclining and emptying into the neck of the retort—the whole for united operation, substantially as and for the purpose set forth.

Second, The drawer or charger, D, when open at top, and in no way or at any time attached as a fixture to the retort, and yet serving during the distilling process as a part of the generating chamber, and being kept elevated above the bottom of the generating chamber, and allowed to slide in and out without the necessity of removing or disconnecting any portions of the retort, or generator, substantially as and for the purpose set forth.

RETORTS FOR DISTILLING OIL FROM COAL—J. E. Holmes, of Newark, Ohio: I claim the employment, in a retort for distilling oil from coal, of a central perforated tube, P, suspended from the mouth-piece, A', an open space being also left below the bottom of tube, P, for the removal of the coke residuum through the mouth, C, substantially as shown and described.

[This improvement consists in the employment, within an upright retort, and at or near the center thereof, of a perforated tube, through which the vapors, or a great portion of them, can escape to the exit-pipe as fast as they are eliminated, without being drawn or forced into contact with the heated sides of the retort, as the greater portion of the vapors are caused to do in the ordinary stationary retort, by the packing of the coal in the center of it.]

WHEEL JACK FOR CARRIAGES, ETC.—Henry Hooton, of Mass., and J. G. Bicknell, of Cambridgeport, Mass.: We claim, first, The combination of the hollow box, a, with the lever, D, the front jointed pawl, C, the back pawl, C, and the notched shaft, B, operating substantially as described,

Second, The combination of the button, E, the spring, F, the catch, G, the button, H, and the jointed connecting rod, K, operating substantially as described,

DOOR LATCH—Mark Howland, of Waterbury, Conn.: I claim the specified relative arrangement for united operation of the latch, C, with female screw-threaded socket, s, latch guide plate, u, with square opening, v, latch shank or rod, B, with male screw-thread, t, on its front end, stationary slotted guide case, A b a a, shoulder, w, on the latch shank or rod, B, spiral spring, D, sliding connecting link or plate, E, with cross heads, d d, and double-acting knob-tumbler, F c c, all for the purpose set forth.

[A latch has long been wanted that may be inserted in a door by merely making an auger-hole, avoiding the trouble of morticing, and capable of making allowance for all shrinkage or swelling of the door. This latch is the very thing, being simple and small.]

MODE OF SECURING CORKS IN BOTTLES—Robert W. Huston, of Calais, Me.: I claim the described fastener, which consists of the metallic pieces, 3, 3, which are hinged on a wire secured below the enlargement on the bottle neck, and which are provided with teeth, 5, 5, 5, with the strips, 6, 6, and with the wire, 2, and clasps, 11, the several parts being arranged substantially in the manner and for the purpose specified.

SEWING MACHINES—A. B. Irving, of Terre Haute, Ind.: I claim the arrangement, relatively to one another, of the following parts, to wit: the upper and lower feeding arms, D D', upper and lower rack shafts, E E', actuating cam, C, combining and regulating projection, J, and slotted adjustable spring holding down bar, I, for the purposes set forth.

RETORTS FOR DISTILLING OIL FROM COAL—Wm. G. W. Jaeger, of Baltimore, Md.: I claim, first, The side channels, d d, and the trap openings, or discharge pipes, e e, for the heavy oils, as set forth.

Second, In combination with said side channels, I claim the double inclination or arched form of the bottom of the retort.

Third, In combination with the coal oil retort, constructed substantially as above set forth, I claim the opening, g, for the purposes set forth.

MACHINERY FOR TRANSMITTING MOTION—Mathaus Kaefer, of New York City: I claim the arrangement of the carriage, C, and fly-wheel, E, in such relation to the crank, F, that the weight of the carriage and of the fly-wheel acts on the crank, substantially in the manner specified.

[On page 40, Vol. XIII, SCIENTIFIC AMERICAN, we illustrated a device for transmitting motion, on which this invention is an improvement. It consists in arranging the fly-wheel in a sliding carriage in such a manner that the weight of the fly-wheel and of the frame itself assists in carrying the crank over the dead points, and that by the action of the weight the crank is always kept in a position most favorable for the motive-power to act on it. It is most especially applicable for pumps, saws, &c.]

FIELD ROLLERS—Geo. Lindley, of Chicago, Ill.: I claim the vibrating scrapers, constructed and arranged so that the driver can operate them, to clear the rollers of the earth adhering to them, when the machine is drawn in either direction, substantially as described.

I also claim constructing and arranging the platform so that the ends which support it may vibrate freely under it, substantially as described, when the rollers pass over uneven ground.

CHURN—W. H. McClintock, of Frankfort, Ohio: I claim the employment of the within specified peculiarly constructed circularly-vibrating suction and force-pump in combination with a churn, constructed with a perforated partition, substantially as and for the purpose set forth.

SUCTION HOSE—Chas. McBurney, of Roxbury, Mass.: I claim the rings, B, operating in the manner substantially as set forth.

MODE OF CONNECTING AND DISCONNECTING MACHINERY BY MEANS OF A BELT—Tindal A. Madison, of Terre Haute, Ind.: I claim, first, The combination of the shifting bar, K, with the belt, D, D, D, the driving pulley, A, and the series of dead rollers, H H H, or their equivalents, for the purposes described.

Second, The combination of the shifting bar, K, and box, M. M, with the gate, or pawl, N, or their equivalents, for the purposes described.

Third, The guide plate, S, with its slot, U U, in combination with the friction roller, h, or their equivalents, for the purpose of giving both forward and lateral motion to the belt, D, D, D, when moved from a state of rest as described.

Fourth, The series of dead rollers, H H H, for the purposes and arranged in the manner set forth.

Fifth, The lever, J, in combination with the slots, d, and e, the stud, f, and connecting rod, R, for the purpose of operating the gate or pawl, N, in the manner described.

WATER-TIGHT SINK—Thomas J. Mayall, of Roxbury, Mass.: I claim the production, as a new article of manufacture, of water-tight sinks, formed from vulcanized india-rubber or gutta-percha, substantially in the manner and for the purposes set forth.

SEATS AND COUCHES FOR RAILWAY CARS—Thomas E. McNeill, of Philadelphia, Pa.: I claim, first, The end frame, D, of the seat, with its slotted stop, and the slotted plates secured to the side of the car, in combination with the back, F, and its pins or bolts, when the several parts are adapted to and arranged in respect to each other, substantially as set forth.

Second, The arms, d, so hinged to the inside of the end frame, as to be folded down under the seat during the day and elevated so as to form supports for the couches during the night, in the manner specified.

Third, The vertical frames, N, hinged to the side of the car, and furnished with ledges to support two couches.

Fourth, The board, R, its rod, p, and the hangers, n, when arranged as and for the purpose set forth.

DEVICE FOR OPERATING THE INDEX OF TIME REGISTERS—Robt. McKenna, of Rossville, Tenn.: I claim the moving of the pencil in the manner described.

HARVESTING MACHINES—John Macpherson, of Pennington, N. J.: I claim, first, The curved slatted flexible apron, K, when constructed in the manner and for the purposes set forth.

Second, The combination of the endless apron, i, with the curved slatted flexible apron, k, the whole being constructed and arranged in the manner and for the purposes set forth.

CULTIVATORS—R. M. Melton, of Criglersville, Va.: I claim, first, The combination of the adjustable links with the adjustable slide, arranged substantially as described, for the purpose of adjusting the distance between the plows.

Second, In combination with the curved plow beam, I claim the coulter constructed and arranged substantially as described, whereby the draught of the side-plows is regulated, by sliding the coulter on the beam and firm support given to the coulter in passing through compact soil.

LOCK FOR REPEATING FIRE-ARMS—J. R. Mock, of Elizabethtown, Ky.: I claim the use of the coiled spring, F, in combination with the sliding lock, the catch, No. 6, catch spring, No. 7, and grooved barrel and grooved breech-pin, substantially as described.

MANUFACTURE OF CORRUGATED BEAMS—Richard Montgomery, of New York City: I claim the roller, A, with its peculiarly formed projections and recesses, in combination with the roller, B, with its peculiarly formed formed projections and recesses, arranged and operating in relation to each other, substantially as and for the purposes set forth.

I also claim the rollers, A and B, in combination with the former, C, said parts being constructed, arranged and operating in relation to each other, substantially as and for the purposes described.

APPARATUS FOR SEASONING LUMBER—M. R. Moore, of Philadelphia, Pa.: I claim the combined arrangement of the track rails, C C', or their equivalents, with a steaming and drying chamber, or vessel, A, fitted with steam pipes and stop cocks, or valves, substantially as described, so as to operate therewith, substantially in the manner and for the purposes specified.

BROOM—D. J. Owen, of Springville Lynn, Pa.: I claim, as an improved article of manufacture, a broom provided with a leather bag, A, spring, C, and otherwise made as shown and described.

[The butt ends of the wisps of this broom are confined in a leather bag of such a form that a steel spring can retain the wisps in the bag.)

CROSS-CUT SAWING MACHINES—G. W. Parker, of Fitzwilliam, N. H.: I claim the crosshead and the several parts attached to it, whether arranged as shown in Figs. 1 and 2, or as in Fig. 3, together with the piece, x, or its equivalent, to work the arms, V and N, to raise the saw and the handle, h, to hold the saw when raised.

CHURN—J. R. Parker, of Sing Sing, N. Y.: I claim the combination of the rotating faces of the disk, C, with the stationary faces, B B, in the manner and for the purposes set forth.

CHAIRS FOR RAILWAYS—J. F. Peabody, of Salem, Mass.: I claim the arrangement and application of rail bearers, b b, with respect to the elastic bearing, E, its cap plate, F, the base plate, a, and under the rails, A B, of the railway chair, substantially as described, and particularly with the elastic bearing and cap plate, arranged and protected by a recess, essentially as explained.

MILLS—A. E. Pirkey, of Bradford, Ill.: I claim the described arrangement of the adjustable slides, and the corner pieces, b, to operate in combination with the piston, B, which receives its motion by means of a lever, E, and wheels, H and I, substantially in the manner and for the purpose specified.

[This is an improvement on that class of mills in which the crushing is done by a square or polygonal piston that works in a suitable shell. The invention consists in a device by which the distance between the sides of the shell and piston can be regulated, so that the flour or meal may be brought to any desired state of fineness.]

SCREW DIES—A. P. Pitkin, of Hartford, Conn.: I claim making a screw plate, A, with both top and bottom parts, P P', which hold the die, N, cast or made on to the screw plate, A, in the manner and for the purpose described.

I further claim the making the inlet for the introduction of the die, N, into its chamber, between the parts, P P', through the outside edge of the screw plate, A, as and for the purpose described.

CLOVER HULLERS—Christian Reif, of Hartleton, Lewis Township, Pa.: I claim the projections at different angles on the concave, in combination with the spiral rows of projects on the cylinder, substantially as and for the purpose set forth.

NUT CRACKER—Ezra Ripley, of Troy, N. Y.: I claim the described nut-cracker, or implement, consisting essentially of the fixed jaw, A, with its standard, e, the movable jaw, B, with its slide, g, and the eccentric or cam, C, with its handle, d, and flange, k, all constructed and arranged in combination for conjoint operation, substantially as described.

SAWING MACHINE FOR RE-SAWING BOARDS—A. C. Ross, of Almont, Mich.: I claim, first, The arrangement of circular saw, K, stationary divider, L, in connection with a permanent horizontal bed in re-sawing machines, for the purposes set forth.

Second, The bell-shaped flanges, or sockets, z, of the saws, constructed and employed substantially as and for the purpose described.

© 1859 SCIENTIFIC AMERICAN, INC

SELF-ACTING WAGON BRAKE—Joseph Rosencrans, of Avoca, N. Y. : I claim the arrangement of means set forth for operating the brake, by the holding back of the team.

STOVES—Geo. H. Russell, of Baltimore, Md. : I claim the combination, with the inner fire drum, A, of the cold air base, D. vertical side pipes, E E', and elbow, e, with their dampers, g g, cylindrical cover, or top drum, with F, its chambers, ff 1 f 2 f 3, and connecting tube, f 4, horizontal air-space, G, and outlet, i, with air-drums, I K, passage, j j, front vertical register pipes, J J, foot warmer connecting pipes, k k, and foot warmer, L, with its register, l, ventilating registers, r r, double smoke-pipes, N n, P p, with dampers set as described, and divided outer smoke drum, O, with its passage, or passages, substantially as and for the purposes set forth.

CARPET FASTENER—A. M. Smith, of New York City : I claim the combination and arrangement of the point, A, lips, b b, slot, c, bearing, d, lips, e e, point, f, hook, g, lips, h h, bearings, i i, substantially as and for the purposes specified.

MANUFACTURE OF BELTING—Chas. E. Smith, of Philadelphia, Pa. : I claim the manufacture of continuous belting, or boards, by uniting pieces of band iron, by lapping and riveting two beveled ends, so as to produce a rhomboidal joint, in the manner and for the purpose substantially as described.

CORDAGE MACHINERY—Geo. Stephenson, of Northfield, Ind. : I claim the employment of a series of movable bearing crossbars, i, with side pivots or gudgeons, k, the ends of the crossbars being supported by longitudinal slots or grooves, h, in the flyer bars, a, and connected to each other by elastic straps or thongs, l, whereby the crossbars are made to press gently upon the ends of the spools (which are mounted upon the side pivots, k) to resist slightly the rotary motion thereof, and also admit of the occasional removal of one or more of the spools, without disarranging others of the series, the crossbars, spools and elastic straps being arranged in the manner and for the purpose described.

AXLE-BOX FOR RAILROAD CARS—Levi Stevens, of Fitchburg, Mass. : I claim a box made of anti-friction metal and backed with a casing of bronze, the bronze passing through the anti-friction metal, and resting upon the axle, for the purpose described.

CONDENSING STEAM-ENGINES—John Sutton (assignor to himself and DeWitt C. Van Tuyl), of New York City : I claim, first, The arrangement of the combined air-pump and condenser piston, K, to act independently of the walking beam of the engine, so that a portion of the exhaust steam, while the piston, F, is first completing and commencing a stroke shall impart a full stroke to the piston, K, as shown and described.

Second, The arrangement and combination of the forked levers, Q S, the crank, E, lever, R, and piston rod, K', so that by the action of the piston, K, the crank, E, will be assisted in passing the dead points, but during other portions of the crank movement, the parts above named will be disconnected from the crank, E, all substantially as shown and described.

[In this invention, the air-pump and cylinder of a condensing engine are combined, and the cold water injection is so applied that condensation takes place in the air-pump, and the use of a separate vessel as a condenser dispensed with. The air-pump is operated by the direct pressure of the exhaust steam upon its piston without any aid from any other part of the engine, and the surplus of power in the air-pump over and above what is necessary for the discharge of the water of condensation from it is used to help the crank or cranks past the centers.]

MANUFACTURE OF WRENCHES—Geo. C. Taft, of Worcester, Mass. : I claim the peculiar mode of construoting the head and shank of screw wrenches, namely, by first forming or constructing the head, c, and shank or bar, a, separately, as shown and described, and then uniting the head and shank after the shank, a, has been inserted into the depression, d, first made in the head, c, by welding, the whole operation being substantially as described and for the purposes set forth.

SEEDING MACHINES—T. H. Tatlow, Jr., of Palmyra, Mo. : I claim, first, The employment or use of the covering hoe, G, operated from the supporting wheel, C, through the medium of the rollers, g g, bar, J, and the bars, F I, connected by the rod, H, substantially as described.

Second, The share, O, provided with the curved bars, j j, in connection with the shares, M N, and hoe, G, the whole being arranged for joint operation, substantially as and for the purpose set forth.

[This invention relates to a novel means employed for covering the seed, and also to a novel device for properly preparing the ground in advance of the share that forms the furrow which receives the seed. This invention is designed to cover the seed more perfectly than has hitherto been done by a machine, and to imitate as far as possible the covering of the seed by hand.]

CORN MILLS—J. W. Taylor, of Philadelphia, Pa. : I claim the application and arrangement of the oblique projections, C, to the shell, or concave, a, operating in the manner and for the purpose set forth and specified.

TAILORS' PRESSING MACHINE—J. W. Thorp, of Hillsboro', N. H. : I claim raising the heater from the bottom of the hollow goose, either by means of the projections formed on the bottom of the heater, or by adjusting screws or their equivalents.

BEE HIVES—S. H. Walker, of Somerville, Tenn. : I claim the moth decoy entrances, c f, provided with the jutting lips or ledges, b d, arranged just within the bee entrance, a, across its entire extent, both above and below, substantially in the manner and for the purpose specified.

I also claim the construction and arrangement of the crossbars, r r, attached to a supporting cross-piece, P, and with open spaces, S S, around their ends, substantially in the manner and for the purpose set forth.

BORING MACHINE—John Waugh, of Elmira, N. Y. : I claim the arrangement of those mechanical appliances, in a peculiar manner, for a new and useful purpose, substantially as set forth.

GAS REGULATORS—D. Wheeler, of Fairfield, Conn., and Isaac Little, of Bridgeport, Conn. : We claim the combination of a self-acting discharge pipe or siphon, S T, with the chamber, c, of a gas regulator, substantially as and for the purposes shown and described.

[An inverted siphon is attached to the gas regulator, and arranged relatively to the outlet by which the burners are supplied, and to the other parts of the regulator that while containing a column of water or other liquid sufficient to balance the pressure of the gas, it will constitute a self-regulating means of escape for any water or liquid matter that may result from condensation in the pipes between the regulator and the burners.]

FRICTION SPRING FOR SUPPORTING WINDOW SASH—E. D. Williams, of Philadelphia, Pa. : I claim providing with friction springs having sharpened projections, or spurs, for cutting their own grooves, substantially as set forth.

COTTON AND HAY PRESSES—Samson Wolff, of Vicksburgh, Miss. : I claim the combination of a conical spiral wheel or pinion, with an inclined rack when the latter is set oblique to the axis of the pinion, substantially in the manner and for the purpose described.

MUSQUITO BAR—Thos. S. Williams, of Enterprise, Miss. : I claim the folding musquito net, or bar, constructed substantially as described.

SEATS AND COUCHES FOR RAILROAD CARS—Theodore T. Woodruff, of Philadelphia, Pa. : I claim the combination and arrangement of the two frames with each other and with the supports therefor, connected with each compartment of a car, the said frame, when spread out forming couches for two persons, on the same level with the seats, and when transformed one of the said frames forming seats, and the other, the back for such seats, substantially as described.

I also claim connecting the frame which forms the seats with the frame which forms the backs, by means of links, connected with one of the said frames by means of hinged joints, and with the other of the said frames by means of sliding hinged joints, substantially as and for the purpose specified.

I also claim, in combination with the frame for the main seats, the auxiliary seats, which slide under the frame for the main seats, substantially as and for the purpose described,

And I also claim the frame for an elevated couch, when combined with the car, by means of sliding hinged joints, substantially as and for the purpose specified.

I also claim, in combination with the elevated couch next to the side of the car, or the equivalent therefor, the front elevated couch, so connected with the car, substantially as described, as to admit of being let down to form part of a double couch, and thrown up towards the roof of the car when not wanted as a couch, as set forth.

SELF-ACTING PRESSES—Lester L. Bond, of Chicago, Ill., assignor to himself and Giles B. Williams, of New York City : I claim, first, The arrangement for connecting the press beam, B, with the levers, D D, by the connecting bars, E E, whereby the press is made to operate from above and below.

Second, The socket shoe, I, and the ratchet plate, H, or their mechanical equivalents, for altering and gaging the power of the press, substantially as set forth and specified.

MACHINES FOR MAKING UPHOLSTERY SPRINGS—C. A. Young and S. W. Young, of Providence, R. I. : We claim, first, The cutters, o r, attached to the machine, and arranged relatively with the rolls, D D I, and bar, J, when the movable cutter, r, is actuated automatically by suitable mechanism to cut the springs as formed from the continuous wire, T.

Second, The bar, J, attached to the lever, H, or other part of the machine or framing, when provided with a bend, l, to project over the uppermost roller, D, for the purpose of guiding and ensuring the turning or bending of the wire, T, as set forth.

Third, The plates, n p, when used in connection with the shears, o r, for the purpose of cutting off the springs and bending the ends thereof, simultaneously and substantially as described.

[A patent was granted this inventor Sept. 28, 1858, for a machine for making upholstery springs, and this invention is an improvement upon it. The invention consists in a cutting attachment applied to the machine and arranged to operate automatically for the purpose of cutting off the springs and bending their ends as they are formed from a continuous wire, and there is a great improvement in the part which bends the wire.]

MACHINES FOR MEASURING CLOTH—John W. Drummond, (assigner to Horace H. Day,) of New York City : I claim the combination of the measuring wheel, substantially as described, in combination with the spring block, or the equivalent thereof, for holding the cloth to the periphery of the wheel, and for stopping the said wheel the moment the cloth has passed off, substantially as described.

COFFEE POTS—D. G. Fletcher, (assignor to himself and Henry Weiskopf,) of Racine, Wis. : I claim the box like strainer, D, arranged with a hinged top, c, so that access can be had to the same from the inside as well as from the outside, and that the same can easily be cleaned, substantially as described.

[This is a very good coffee pot, in which all the aroma is preserved and the whole flavor of the coffee is retained.]

REFRIGERATOR—Wm. H. Lazelle, (assignor to himself and Elbridge B. Lazelle,) of Boston, Mass. : I claim the combination and arrangement of the siphon pipe, I, water space, F, and ice box, C, open and beveled at one end, substantially as set forth and for the purposes described.

DRY GAS METERS—Hugh Logue, (assignor to himself and Daniel P. Vandergrift,) of Philadelphia, Pa. : I claim so constructing one of the partitions between two of the chambers of a dry gas meter that it may afford a passage for the gas from the inlet pipe to the central opening of the valve seat, substantially as and for the purpose set forth.

HEMP BRAKE—Henry F. Mann, (assignor to himself and Wm. J. Walker,) of Laporte, Ind. : I claim, first, The combination of the adjustable cams or arms, c, with the breaker, as constructed, the whole being arranged and and operated substantially as described.

Second, The adjustable spring, h, as arranged and operated for the purposes set forth.

MACHINE FOR CUTTING INDIA-RUBBER INTO THREADS—Henry Messer, of Roxbury, Mass., assignor to Charles Rice, of Boston, Mass. : I claim the arrangement and combination of the rotating table, D, and the adjustable cutters, o s, substantially as and for the purposes shown and described.

GRINDING MILLS—A. Orvis, of Niagara, N. Y., assignor to himself and Downs and Co., of Seneca Falls, N. Y. : I claim, first, The construction and arrangement of cylinder, D, and concave, F, with supplementary cylinder, G, whereby the rhomboidal teeth, f and g, serve to adjust the parts to efficient action by means of the longitudinal movement of the collar, e, on the shaft, B, substantially as set forth.

I also claim the peculiar conformation of the grinding surfaces of the cast-iron cylinder, E, and concave, H, consisting of the alternate intersection of the raised and depressed corrugations thereof, in the manner and for the purpose shown and described.

I claim the combination and arrangement of the two concaves, F and G, spout, j, and divided winged partition, R, or its equivalent, whereby the operation of cracking and grinding in said concaves may be conjoint or separate, substantially in the manner and for the purposes shown and described.

I claim the automatic rapper, V, arranged and operated substantially as described, for the purpose of keeping the bolt free from obstructions and rendering its action efficient, as set forth.

SOFA BEDSTEAD—Wm. H. Tendler, (assignor to himself and John F. Moeschlin,) of Cambridge, Mass. : I claim the improved sofa bed, constructed not only with each of its arm-rests formed in two parts and hinged together, arranged and applied to the back b, and bed-frame, a, as described, but with its seat hinged to the bed-frame, so as to be capable of being moved with respect to it and the arm-rests, as specified.

I also claim the combination of the pillow and foot-rests, l m E and F, with the arm-rests and seat-frame or seat applied to the frame, A, the whole being made to operate together essentially as explained.

MILL DRIVERS—Ferdinand Walters, (assignor to C. F. Walters and S. H. Stout,) of Covington, Ky. : I claim the driver, d d', constructed and arranged with reference to the shaft, C, and cap, c, substantially as and for the purpose set forth.

HEEL BOOTS AND SHOES—Alford B. Wilton, (assignor to himself and Charles Adams,) of Dorchester-Mass. : I claim the improvement of the dished or concave elastic heel as made with the air-channel, b, leading out of the concavity, a, and arranged substantially as described.

RE-ISSUES.

CRACKER MACHINE—John McCollum, of New York City. Patented March 23, 1852 : I claim the combination of adjustable springs with a cracker cutter and its resisting surface or bed, substantially as herein before described and substantially for the purposes set forth.

MACHINE FOR CREASING AND BLACKING LEATHER FOR HARNESS—Adolph Stempel, of New York City. Patented Nov. 2, 1858 : I claim, first, The pressure roller, F, and the creasing and embossing rollers, i, in combination with the color fountains, K and L, and felt rolls, M M, arranged to operate as and for the purpose set forth.

Second, The arrangement of the embossing rollers, i, with their projection flanges, K', to operate in combination with the guides, d d', substantially in the manner and for the purpose specified.

[On page 75 of the present volume of the SCIENTIFIC AMERICAN we noticed an invention by this gentleman for the same purpose as the present one, which consists in the employment of creasing or embossing rollers and a pressing roller, combined and arranged with two color fountains and felt distributors, the whole being arranged for creasing, embossing and coloring leather straps. There is a particular arrangement of the embossing rollers, in combination with guides, the rollers being provided with grooved edges, thus enabling it to its work perfectly.]

PLATES FOR BOILER HOLES AND TOPS OF STOVES—David Stuart and Richard Peterson, of Philadelphia, Pa., assignees (through mesne-assignment) of John B. Chollar, of Albany, N. Y. Patented February 6, 1849 : I claim constructing a cross piece for cooking stoves and ranges with a hollow chamber and with the openings, e e, to allow air to pass into the said chamber, substantially as set forth.

GRINDING AND POLISHING KNIVES—James Dodge, of Waterford, N. Y., assignor to himself and David Blake, of Albany, N. Y. Patented October 12, 1858 : I claim grinding and polishing articles and forming their surfaces upon or against the periphery of a grindstone or polishing wheel, or other analogous reducing surface, by attaching them to the periphery of a revoking drum or cylinder, substantially as set forth.

I also claim making matrices in the periphery of a wheel to which a series of articles to be ground are attached, said matrices being adapted to give the required shape to the articles to be ground, so as to grind, polish and shape such articles in a uniform manner, substantially as and upon the principles set forth.

I also claim, in combination with said matrices, attaching and supporting the articles to be ground upon the cylinder in such manner as to allow them to rock or accommodate themselves thereon, whereby their surfaces may be shaped either convex, flat or concave, substantially as set forth.

GAS LAMPS—George H. Bechtel, of Philadelphia, Pa., assignee (through mesne-assignment) of Horatio G. Sickles, of said Philadelphia. Patented Aug. 7, 1849 : I claim, first, For ming a valve within the adjustable gas chamber, P, and a seat for the said valve on the tube which contains the wick, t, so as to regulate and extinguish the light when required, whether the said valve be made and arranged in the manner described, or other means substantially the same, by which similar results may be produced.

Second, The employment of the safety valve, C D E, in combination with the guard, T, constructed substantially as described.

Third, I also claim the guard, T, in combination with the combined burner and generator, arranged and operating in the manner and for the purpose set forth.

Fourth, I likewise claim combining the generator, Q R, burner, P, ring, U, and guard, T, in a single piece, made to ascend and descend simultaneously in the manner and for the purpose substantially as set forth.

ADDITIONAL IMPROVEMENT.

APPALATUS FOR EVAPORATING SACCHARINE JUICES—Lyman P. Harris, of Mansfield, Ohio. Patented Jan. 18, 1859 : I claim, first, The application of one or more dampers, H, to the movable furnace, A; also the cooling surface on the evaporator connected therewith, for the purposes set forth.

Second, I claim the movable flue, I, as described.

Third, I claim the broad hook or supporter, K, or its equivalent, as set forth.

INVENTIONS EXAMINED at the Patent Office, and advice given as to the patentability of inventions, before the expense of an application is incurred. This service is carefully performed by Editors of this Journal, through their Branch Office at Washington, for the small fee of $5. A sketch and description of the invention only are wanted to enable them to make the examination. Address MUNN & COMPANY,

No. 37 Park-row, New York.

Literary Notices.

FROM WALL STREET TO CASHMERE—By John B. Ireland. A Journal of Five Years in Asia, Africa and Europe. S. A. Rollo & Co., No. 29 Park Row, publishers.

This work contains 530 pages, and is profusely illustrated with spirited wood cuts, prepared from sketches by the author, the last one being called "Preparation for a Suttee," a process of cruelty which has long been abolished by the British Government, and the picture, although original, reminds us much of one which was published in the missionary tracts of our juvenile days. The author does not lay claim to any peculiar merit in his voluminous notes of travel, either as regards literary skill or novelty, and in this respect it is but candor to say that there are few intelligent travelers who could not, by care and pains-taking, produce an equally readable work. This volume is tastily got up in blue and gold, and reflects much credit upon its publishers.

THE AMERICAN STAIR BUILDER.—The art of Stair-building is one of the most intricate branches of joiner-work, and requires great skill and long practice to master; in no department of mechanism is practical mathematics so much employed to advantage, therefore every good work on this art is of great importance, because it imparts information which has taken years of practice to acquire, and thus it is like a valuable labor-saving machine. This we apprehend, from an inspection of its contents, is the character of the "American Stair Builder," a new book by W. P. Esterbrook and James H. Moncton, architects and builders, this city—Baker & Godwin, publishers. It is an exposition of the whole subject, illustrated with numerous diagrams and plates, and presents an experience of twenty-five years' practice in the art.

BOOKS AND PERIODICALS RECEIVED.

THE HARP OF A THOUSAND STRINGS. A book of fun. Published by Dick & Fitzgerald, No. 18 Ann-street.

BLACKWOOD'S MAGAZINE, for this month. Published by Leonard Scott & Co., No. 54 Gold-street. A renowned monthly magazine.

THE GAS-METER CHECK BOOK, by E. E. Perkins. A useful book for gas consumers. Published by M. Haskell & Co., No. 103 Fulton-street.

PRAIRIE FARMING IN AMERICA, by James Caird, M. P., an intelligent Scottish agriculturist, who visited our country to examine its agricultural condition and capacity. Published by D. Appleton & Co., Broadway.

L'INVENTION, par Ch. Desnos-Gardissal, Ingenieur Civil, 29 Boulevard St. Martin, Paris.

THE CANADIAN AGRICULTURIST. Toronto, C. W.

QUARTERLY JOURNAL OF AGRICULTURE. Ben. Perley Poore, editor, Washington, D. C.

NATIONAL RECORDER. Washington, D. C.

HUMPHREY'S JOURNAL OF THE DAGUERREOTYPE AND PHOTOGRAPHIC ARTS. J. H. Ladd -publishers, 37 Lispenard street, New York.

THE AMERICAN JOURNAL OF PHOTOGRAPHY AND THE ALLIED ARTS. C. A. Seely, A. M., Editor. Seely & Garbanati, publishers, 424 Broadway, New York.

WILSON'S BUSINESS DIRECTORY for 1859-60. John F. Trow, printer, 379 Broadway, New York.

PHYSICAL PERFECTION. By D. H. Jacques. Fowler & Wells, publishers, Broadway, New York.

THE LONDON QUARTERLY REVIEW, with an interesting series of articles. L. Scott & Co., New York.

AMERICAN HOMEOPATHIC REVIEW for June. J. T Smith & Co., Broadway, New York.

HALL'S JOURNAL OF HEALTH; a capital and spirited publication. Henry B. Price, New York.

AGRICULTURAL REVIEW. A valuable agricultura journal. Prof. Charles A. Cameron, Dublin, Ireland.

"The Strongest Man in the World" Prostrated.

[Dr. George B. Winship attempted to lecture last evening at Mercantile Hall, on "Physical Education."] The hall was filled to overflowing, attracted no doubt by the fame of the lecturer in relation to his prodigious feats of strength, it having been claimed for him that he was the "strongest man in the world." Dr. Winship commenced reading his lecture promptly at eight o'clock, and had proceeded but a few moments before his voice began to fail and became weak and tremulous; and before the audience generally were aware of it, he dropped directly on the platform. Several gentlemen rushed to the platform and immediately bore him to the adjoining ante-room, where Dr. Walter Channing and others attended upon him.

It was soon announced that he would go on with the lecture in a few moments, He appeared, and after apologizing to the audience, said it was the first time he had ever fainted. [He then proceeded with his lecture, and had read but a few pages when he again became overpowered, retiring just in time to save himself from another swoon.] By the advice of physicians present, he was dissuaded from attempting to go on with his lecture, and it was announced that it would take place at some future time.

The audience on retiring were allowed to receive tickets or their money, most of them taking the former. It is said that on being taken from the ball his heart had nearly ceased to beat. Dr. W. accounts for the unfortunate affair on the ground that the atmosphere of the hall was close and impure. [His friends] however, [regard it as caused by the peculiarity of appearing before a public audience for the first time.

Dr. W.] has for several years given much attention to the subject of physical education. He [is twenty-five years of age, five feet seven inches in hight, and weighs one hundred and forty-three pounds. He graduated at Cambridge five years ago. He [can raise a barrel of flour from the floor on to his shoulder; can raise himself with either little finger, till his chin is half a foot above it; [can raise 200 pounds with either little finger; can lift with the hands 926 pounds dead weight, without the aid of straps or belts of any kind. Topham, the strongest man of England, could raise only 800 pounds in the same way; and the celebrated Belgian giant could lift only 800.] Dr. W. was prepared to exhibit all these feats, but the unexpected turn which events took prevented it. The strong man proved an infant.—*Boston Atlas.*

[Ozone]—What it is.

This peculiar substance [according to Professor Faraday, in a late lecture, is oxygen gas, under electrical excitement. It can be formed by passing the electric spark directly through the gas or by making the electric current pass over the exterior of a tube containing oxygen.] Ozone destroys the colors of vegetable substances and attacks with avidity metals that simple oxygen will not act upon. It has also been found by very recent experiments that electrolized hydrogen possesses greater powers of reduction, than simple hydrogen. Hitherto no useful application of ozone has been made to the arts, but we think the time is not far distant, when some new new discovery will enable it to be made very cheap; it will then supply the place of chlorine as a bleaching agent.

© 1859 SCIENTIFIC AMERICAN, INC

New Inventions.

An Old Telegraph Revived.

The London *Builder* states that Professor Wheatstone has recently communicated a paper to the Academy of Sciences, in which, what is called his "automatic telegraph" is described, and which, it is stated, can print 50,000 letters per minute. It consists of four different contrivances, first, a perforator for the purpose of piercing holes in a long strip of paper, the relative position and number of these expressing the letters of the alphabet; second, a transmitter which receives the perforated slips of paper and transmits the electric current as determined by the holes in it; third, a receptor which at the receiving station marks on a paper certain black points corresponding to the holes in the perforated transmitting paper; fourth, a translator machine, by which the telegraphic marks are translated into the ordinary alphabet characters. This translator has keys which communicate with letters on the alphabet and print them on a sheet of paper.

If this is all the new invention in telegraphing which Prof. Wheatstone can bring up at the present day, it appears to us that it would be more to his credit to have said nothing about it. The first three parts of his *new* invention are described and illustrated on page 273 Vol. III. of the Scientific American, as belonging to the chemical telegraph: the last part relating to the translator, is simply a hand letter printing machine nearly similar to one illustrated on page 100, Vol. XII, and exactly like that of S. W. Francis, illustrated on page 125, Vol. XIII., of the Scientific American.

Improved Shingle Machine.

The great improvements which have been made in all machinery for working wood, whether into rough articles such as shingles, or the most delicate forms produced by the lathe, would almost cause a person to imagine that there was nothing left for any man to improve or invent. But such is not the case. and the nearer we seem to arrive at perfection, some other improvement shows us the distance we have been from it. Our illustration shows a shingle machine invented by W. H. and G Yates, of Chittenango, N. Y., and patented by them April 5, 1859, which takes but little power, and saws the bolt or block with great economy, giving the proper taper, and requiring no "dogging" and "undogging" of the bolt, the thickness of the shingle can be varied at the butt and point, and it is so simple that any mechanic can construct it after seeing one in operation.

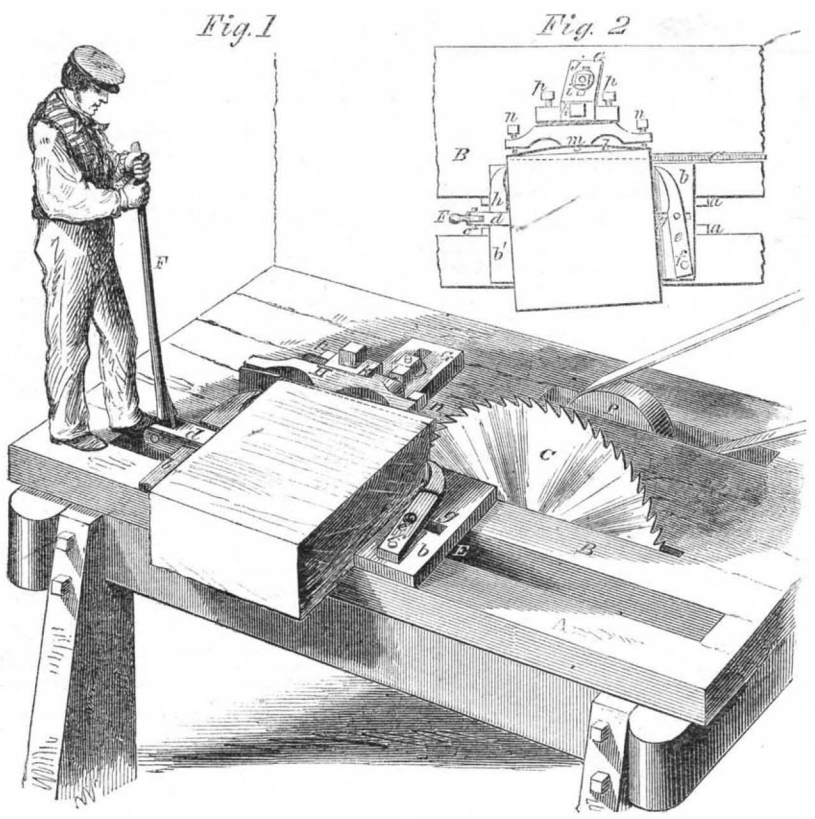
Fig. 1 is a perspective and Fig. 2 a top view of the machine. A is a framing and B a platform placed thereon. C is a circular saw, the arbor, D, of which is placed on the framing, A, and allowed to slide freely between suitable guides. The carriage is constructed of two parallel bars, *a a*, which have metal plates, *b b*, secured transversely to their ends, the plates projecting over on the platform, B, nearly to the cutting plane of the saw. To the plate, *b*, a lever, F, is attached by a fulcrum pin, *c*, and a rod, *d*, between the bars, *a a*, is also attached to F, its other end being connected with a jaw, *e*, by a pivot that passes through a slot, *a*, pivoted at *f* to the upper surface of *b*. A stationary jaw, *h*, is connected with the plate, *b'*.

On a platform, B, a bent bar, G, is attached by a screw bolt, *i*, that passes through a slot, *j*, in the bar. To the upright portion of G a bar, H, is attached a pin, *k*, which passes through a projection, at the outer side of H. To the inner or face side of bar, H, a metal plate, *l*, is attached at its center, *m*, and set screws, *n*, bear against the ends of the plate. Through each end of the vertical portion of G a set screw, *p*, passes.

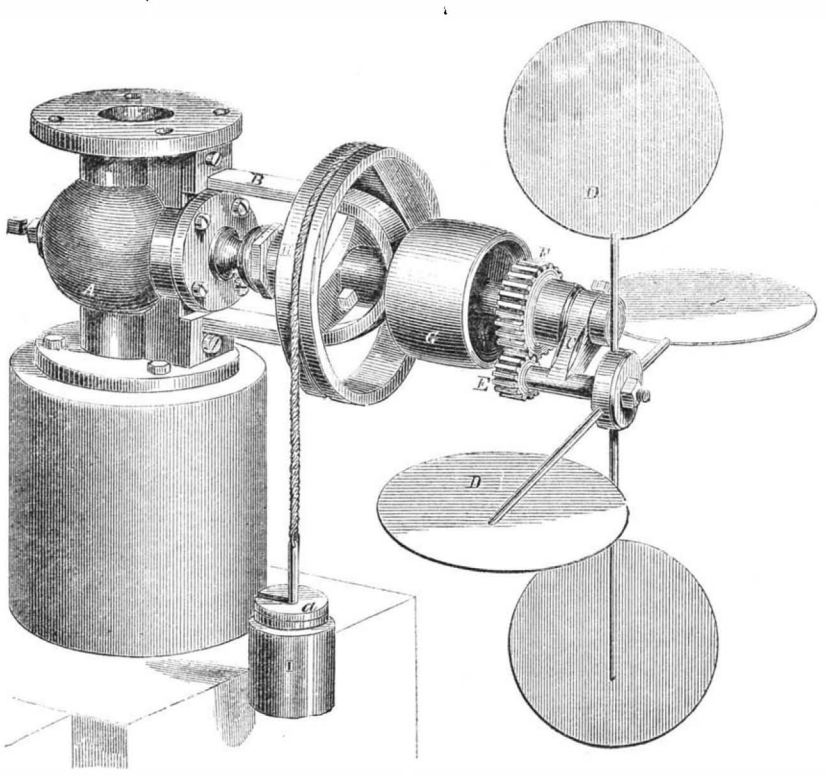
The operation is as follows:—The "bolt" from which the shingles are cut, is placed on the plates, *b b'*, and is secured by the operator shoving forward the upper end of lever, F, as he moves the bolt to the saw, the dogging of the bolt and the forward movement of the carriage being simultaneous, the side of the bolt adjoining the saw rests or bears against the plate, *l*, of the bar, H, which is moved obliquely with the saw at the termination of the backward movement of the carriage, F, and alternately in opposite positions so as to cause the shingles to be sawn in taper form from the obliquity of H, and consequently the taper of the shingles is determined by set screws, *p*, which may be adjusted as desired. By adjusting the set screws, *n*, the thickness of the shingles may be graduated very nicely as the ends and bearing surfaces of plate, *l*, are thereby thrown out.

Any further information regarding this simple and useful invention can be obtained from the inventors by addressing them as above.

YATES' SHINGLE MACHINE.



WHITTIER'S FAN GOVERNOR.



The devices which are thrown out from the minds of ingenious men for the improvement of the steam-engine are numerous, and all tend to insure economy of steam, and consequently fuel, regularity of action, or increased durability. The special invention to which we would now call attention is a fan governor, in which the resistance of the atmosphere is made the regulating agent, and as that material is ever present and always to be depended upon, this part of the device is at least perfection; what the mechanical portion is we will endeavor to explain.

Our illustration shows a perspective view of the invention applied to a throttle valve, A, that is operated by a partial rotation of its spindle. To A is attached a light frame, B, through which the valve stem and connecting arbor passes. On the end of the arbor a crank, C, is attached, and the end of the crank is formed into a hollow journal in which the arbor of the fan, D, can rotate, and at the same time the fan be supported. The arbor of D has on its back end a cog-wheel, E, that gears with another, F, that, with the belt wheel, G, the two being connected, revolves on a sleeve that is part of the frame, B, and through which the valve stem passes to the crank, C. Attached to the arbor is a wheel, H, by the motion of which the valve is opened or closed, stops are placed close to one of its radii to catch against the frame, B, and thus prevent the strain of the weight, I, coming upon the valve. This weight, I, is attached by a small chain to the periphery of the wheel, and it thus forms an endless lever. Small weights, *a*, are placed on I to increase or vary the speed of the engine. Now, having described the parts, the explanation of its operation will be easy. The pulley, G, and gear, F, are rotated by a belt or gearing from the shaft of the fly-wheel in the direction shown by the arrow, and through, E, the fan, D, is driven. As the speed of the engine increases the fan is revolved more rapidly and consequently receives more resistance from the atmosphere, and they act as a brake to their shaft, and as the gears, E and F, engage, any resistance offered to the revolution of E on its own axis will cause it to revolve around the axis of revolution of F, and in this movement it carries the crank, C, which partially rotates the wheel, H, elevates the weight, I, and tends to close the valve. When the speed of D decreases the reverse takes place, as the resistance is less than the weight I, the valve is opened by I pulling on the wheel. All the graduations between the open and shut are of course attained, and the point which the engine is not to go beyond is determined by the weights, *a*. Fan regulators are known to all who have studied the devices, which have been at various times applied to the steam-engine, the novelty of the above being in the great simplicity of the combination, ensuring sensitive and perfect action, as all mechanics will see for themselves by an examination. The inventor is Charles Whittier, of Roxbury, Mass., and a patent was granted to him Nov. 3, 1857.

Any further information can be obtained by addressing the manufacturers, Campbell, Whittier & Co., successors of Chubbuck & Campbell, of the same place, who make all sizes and varieties to suit the engine to which they are to be applied.

Wooden Shoe-Leather.

Under this caption the Essex (Me.) *Banner* has the following:—"We have seen a new article which cannot fail to come into general use as soon as its merits are known—boots with soles of wood. They are as elastic as any thick soles, easy to the feet, and comfortable. They are cheap, and will turn water better than rubbers, which they will take the place of soon."

[Shoes with wooden soles have been worn by the peasantry in some parts of England from time immemorial, and are called clogs. A company in this city manufactures them in large quantities for the negroes on the southern plantations. The French *sabot* is a wooden shoe—upper and sole. Wooden soles in shoes do not accommodate themselves to the spring of the foot in walking, hence they are inferior to leather in this particular, but they are much warmer and keep the feet dry and comfortable.—Eds.

Applications for Extension of Patents.

Fan Mills.—Isaac T. Grant, of Schaghticoke, N. Y., has applied for the extension of a patent for fan mills granted to him July 10, 1845. The petition is to be heard at the Patent Office, June 27.

Dredging Machine.—James Hamilton, of New York, has applied for the extension of his patent, a dredging machine, dated December 16, 1845. The petition is to be heard at the Patent Office, November 28.

Machine for Raising and Lowering Weights.—Ephraim Morris, has applied for an extension of his patent for the above machine, granted July 5, 1845. The petition is to be heard at the Patent Office, on the 20th of June.

Remember, Friends, that the Scientific American is to be enlarged and improved for your benefit, at a great expense to us, and we therefore venture to call upon you to take hold and send us a few new subscribers. Send for a prospectus without delay.

© 1859 SCIENTIFIC AMERICAN, INC

Scientific American.

NEW YORK, JUNE 11, 1859.

Special Notice.

All subscribers to the SCIENTIFIC AMERICAN who have paid the full subscription price (two dollars) for the complete volume which has heretofore terminated in September, are informed that by remitting $1 60 more, their subscriptions will be continued for one year on the New Series commencing July 1st.

CLUBS of subscribers who have paid up to September, and wish to renew their subscriptions or form new clubs at that time, can do so at the club rates, deducting 30 cents each from all the present subscribers and complying to our advertised rates on new ones; for instance a club of 10 subscribers who have paid $15 for one year's subscription up to September, may have their subscriptions continued till the end of Vol. II., New Series, or one year from July 1, 1859, by remitting $12.

Plowing by Steam.

Illinois appears to be taking the lead of all the other States in agricultural progressiveness. A prize of $6,500 has been placed at the disposal of the its State Agricultural Society for the best steam plow, and, from a circular sent us, we learn that a company has been formed in the city of Chicago, with a capital of $50,000, for introducing into practical use the traction locomotive rotary tiller of Thomas Kiddy.

This subject is by no means a new one, although but little attention has been given to it until within two or three years past. We will endeavor to present some information showing what has already been done by others, so that the ground may be better understood than it now is.

England has been the experimental farm for steam plowing, efforts having been made twenty-seven years ago to reclaim and cultivate Chat Moss by steam machinery. An engine, stationed at one end of a plot of land, was employed to drag plows through the soil by means of ropes passing over the drum of a windlass. With some modifications of machinery, this system appears to have been the most successful that has yet been attempted. The person who has done most to render plowing by steam, in England, as economical in cultivating land as animal power, is Mr. John Fowler, an agricultural engineer, who has expended no less than $100,000 for this purpose. He employs a portable engine on wheels, stations it at one end or headland of a field; then at the other end he puts up a frame called an anchor, on which there is a drum, and the distance between this anchor and the engine is the length of the furrow to be turned over. An endless wire rope extends from a windlass on the engine around the drum on the anchor frame, and to this rope is attached a frame carrying six plowshares—the one placed a little behind the other—and these turn over six furrows at once. The engine winds the wire rope on one end of its windlass while it is given off at the other end, and the plows are then dragged forward towards the anchor, and when they arrive at this point they are reversed, the anchor frame moved a little forward at one headland while the engine moves itself forward for the next six furrows, and the six plows are then dragged back, turning over six other furrows in returning. The engine and anchor frame are thus moved at intervals on the headlands, in parallel lines, but are stationary while the plows are working. This system is very simple, and no power is expended, as in a locomotive steam plow, by dragging the engine through the soft soil. It is stated that the anchor frame can be shifted and the plows reversed at the end, turning nearly as fast as a team of horses can be turned. By the same method of operating the engine and windlass, other implements for cutting up the soil have been tried as substitutes for the plow, such as rotary cultivators, resembling a series of revolving scrapers for plunging into and stirring up the soil. Mr. J. Smith, of Wolston, England, has employed this method for five years with great success, and has found it best to apply it in the Fall. It brings all the weeds and sods to the surface, exposes their roots to the frosts of winter, and kills them; and it is recorded that stiff clay soils, by this process of cultivation, have become mellow and easily worked.

Another system of steam plowing, different in principle, was illustrated on page 401, Vol. VI., of the SCIENTIFIC AMERICAN, and consisted of a locomotive having broad-faced wheels, which moved over the field to be plowed, drawing a transverse frame, in which were a series of revolving plows on an endless chain. As the plows operated at right angles to the forward motion of the wheels, the action of this plow was very defective. Another plow, upon the same principle of operation by a locomotive engine, was illustrated on page 297, Vol. VII., of the SCIENTIFIC AMERICAN. It carried five rotary cultivators, and its action impressed us favorably, but it has not been able to contend with Fowler's, which has taken nearly all the steam plow prizes offered by the agricultural societies in Great Britain. A locomotive steam plow, with a broad spiral cultivator dragging behind the engine, has also been tried in England, but with no success.

Little has been done in our own country in the way of steam plowing in comparison with the efforts made in Great Britain; still, we have made a beginning, and this is cheering.

In 1855, Obed Hussey, of Baltimore, the well-known inventor of the mowing machine, constructed a steam plow and tested it in October, 1856, as described on page 341, Vol. XII., of the SCIENTIFIC AMERICAN; but since that period we have not heard that it has ever been used, nor the reason why. On the 10th of November, 1858, the steam plow of Mr. Fawkes was exhibited and tested before the State Agricultural Society of Illinois, and although statements were then made that it had been very successful, it does not appear to have satisfied the farmers of the "Prairie State;" hence the prize we have mentioned which is once more offered by the State Agricultural Society. Mr. Kiddy's steam plow, to which we have alluded, is a locomotive that carries its own endless railroad to prevent sinking into the soil, and thus it is intended to save the power that would otherwise be expended to drag itself. It is, in principle, similar to that illustrated on page 353, Vol. III., of the SCIENTIFIC AMERICAN, and which, in England, is called "Boydell's traction system." Its tillers are not common plowshares, but double vertical revolving screw cutters for cutting and stirring up the soil, and they appear well adapted for this purpose. Every American steam plow that has yet been brought before the public embraced the locomotive principle of the engine moving over the entire field, dragging a set of plows, which is quite different in its nature from Fowler's, the one which has been most successful in Europe. The engine used for operating a steam plow should also be capable of being applied to threshing, grinding and other opertions of a farm, as none of our farmers can well afford to keep an engine for plowing exclusively. In hilly countries the steam plow will never be able to supplant horses; but in such a State as Illinois, where the farms are very large, the soil mellow and the fields nearly level, and where fuel is abundant, the steam plow appears to be invited to success.

PROFESSOR BRUNNOW has arrived at Albany to assume the duties of his office at the Dudley Observatory. We hope the troubles of this institution are ended, and that it will go on prospering.

"Atlantic Science."

Without for a moment disputing Dr. Holmes' self-evident proposition that "Boston is the hub of the universe," or that Harvard is the intellectual sun from which all knowledge is emitted, we should like to make one small observation on an article in the *Atlantic Monthly* for June, entitled "The Stereoscope and the Stereograph." The writer of the aforesaid article commences with informing us that Democritus, of Abdera, "believed and taught that all bodies were continually throwing off certain images like themselves, which subtile emanations, striking on our bodily organs, gave rise to our sensations." We are further kindly informed that "Epicurus borrowed the idea from him, and incorporated it into his famous system of which Lucretius has given us the most popular version," thus pleasantly blending heathen philosophy and bad science for the delectation of the "Wise men of the East."

After dilating somewhat on these evanescent films, and slightly indicating that they cannot exist when light is withdrawn, the writer, with a film in his eye, proceeds to detail the processes of the daguerreotype, the photograph, the stereoscope and the stereoscopic picture, or, as he calls it, "the stereograph;" and joking apart, the impression left on the reader's mind is, that one of these films which are continually emanating from all bodies, being "caught flying" and fixed upon paper or metal, forms the picture; or in other words, that a photograph is an emanation of the thing represented. Altogether, the influence of the article will not be very beneficial in a scientific point of view, not because it is altogether untrue, but because the truth is not positively stated.

Why, we would ask, should Democritus, Epicurus and Lucretius be called from their graves to give their opinion on a subject of which they knew nothing, when Descartes, Euler and Huygens have but just passed away?

See how simple and beautiful is their theory, which supposes light to be the result of undulatory or oscillatory movements, in the ethereal or imponderable medium, filling up the interstices existing between the molecules of ponderable matter, and extending into space beyond the confines of our atmosphere. The image of an object then, like a note in music, depends on the number of vibrations it is capable of creating, and chemical decomposition is effected on the plate or paper to produce a photograph by the motion of the particles. How simple all this is, and how it opens up to the mental vision images of beauty and scenes of gorgeous undulatory loveliness, of which no "subtile emanation" is capable.

If the living ass dare kick at the dead lion, we should advise the writers in our monthly friend to remember, that while it shows learning and research to state old theories and exploded ideas concerning science and the methods of it, yet it shows truth and the love of it to give the people the truest information positively asserted.

Howe's Sewing Machine Patent in England.

The decision recently made in the Court of Errors, confirming a decision of the Court of Queen's Bench, made in 1858, in England, as briefly set forth on page 297 of our present volume, has caused a number of enquiries to be made of us as to the probable effect of this decision upon sewing machine patents now in existence in the United States. As a general answer to such interrogations, we will state that it has no effect whatever upon any patent in this country. Patents in the United States are held under the authority of our Federal courts, and remain in full force until they expire or are declared invalid by "due process of law."

The English patent referred to, known as the Thomas patent, is, in fact, for the Howe machine; but upon a careful investigation of the matter, which we have been led to make in order to present to our readers who are interested in sewing machines a true statement of the facts, we find the claim in the original English patent, on which the case in question was tried, to be quite different, in essential points, from those of Howe's American patent, which has thus far been sustained by our courts.

Since this decision in the Court of Queen's Bench, Mr. Thomas has filed a disclaimer to certain parts of his patent; and now, instead of claiming the needle and shuttle in combination, as described in the Fisher & Gibbons specification for a machine for embroidering, he now holds a patent under his disclaimer for the general arrangement of the several parts, and, as thus modified, it is now in force.

This plain statement will, we think, render the matter clear, and it is but just to all whom it may concern.

Websters' Dictionary Illustrated.

A pictorial edition of this truly national and valuable work—the principles of which are gradually working a revolution in the language of our sires—is shortly to be published by Messrs. G. & C. Merriam, of Springfield, Mass. As no household can be complete without the celebrated "unabridged," which is a library in itself, so none will be perfect without the illustrated edition; for while the older one will do for the student, the young folks will learn philology and study the meaning of words much more rapidly when they are assisted by pictures which are well drawn, well engraved and very truthful, and which will impress the definition upon their minds as the light daguerreotypes the image upon the metal plate. From the specimen number we have seen, we are favorably impressed, so much so that we cannot express our idea of the increased value which these illustrations will give to the work, making it more encyclopædic in its character than it has hitherto been, and achieving that most difficult of combinations—entertainment and instruction.

Several thousands of new words have been added, together with a table of synonyms by Professor Goodrich, and the illustrations will be 1500 or more. It is a great work and we wish it success.

Progress of Gas Lighting.

The smoking car in each of the night express trains on the New Haven line between this city and Boston is now lighted with gas, under Hill & Wood's patent of 1855, the gas being contained at the ordinary street pressure in a capacious box of sheet iron and expelled by the action of a meter which is worked by a clock spring so as to serve as a pump. The holder is suspended under the car body and is divided into two parts by a flexible diaphragm. When the upper side is opened to the atmosphere and the lower side is connected to the street mains by a rubber hose the gas flows in and rapidly raises the diaphragm. The filling of each in this manner occupies, we are informed, about five minutes, and is done while the cars are standing idle at the terminal stations. The charging completed, the meter, instead of serving its usual purpose, is by the action of the spring made active in forcing common air into the space above the diaphragm. The gas flows to the burners through pipes connected to the base of the holder in the ordinary manner, and a sufficient quantity is carried to supply 7 feet per hour, producing an amount of light equal by photometric measurement to about 4 times that of the large candles usually employed.

On the English railroads, the stupid custom is practiced of placing passengers' luggage on the tops of the carriages. Several disagreeable instances have lately occurred in which the luggage so exposed has taken fire by sparks from the locomotive. It is really surprising that Uncle John has not yet learned the good American custom of packing all the baggage in a special car where it is perfectly protected from fire and rain.

Mr. BISHOP, Commissioner of Patents, entered upon the duties of his office about three weeks ago.

© 1859 SCIENTIFIC AMERICAN, INC

Canadian Patent Laws.

We regret to state that the bill introduced during the present session of the Canadian Parliament for amending the patent laws of that province, has been defeated by a considerable majority. It provided that a citizen of the United States, or any other country, could obtain a patent in Canada for an invention patented in the United States, if applied for within twelve months from the date of the patent. The vote was taken upon this bill on the 30th ult., and was 43 to 24 against its immediate adoption. It seems to have been defeated by the opposition of the Attorney-General (Mr. Cartier), although it was ably advocated by Messrs. Lemieux and McDougall. The arguments which Mr. Cartier advanced against the bill were not, in our opinion, well weighed before they were uttered. He said: "The bill is an insidious attempt to give undue advantages to patentees of the United States. It was absurd to propose to place them on the same level with Canadian patentees. He would not object to the proposition if Canada had some twenty or thirty millions of a population, but under the present circumstances its injustice to Canada was obvious to every one."

We believe we can make it very plain that the very arguments which the Attorney-General advanced against the bill were such as should have induced him and his adherents to vote for it.

First, The equality of the bill which he objected to is the very principle, recognized in the British Patent Law, which permits the citizens of all nations to take out patents on equal terms.

Second, It is more advantageous to a country containing a small population to grant patents to the citizens of large and populous commonwealths, than for the latter to grant patents to the former. It is a far greater benefit to the citizens of Canada to obtain patents in the United States than it would be for our citizens to secure patents in Canada. The reason of this is obvious. A patent granted to one of our citizens for Canada would only admit him to the exclusive making, selling, and using of his machine among a population of two millions, whereas a citizen of Canada who obtains a United States patent has an exclusive privilege among a population of no less than thirty millions. As a question of justice and of sound policy for Canada, it appears palpable to us that Mr. Cartier was entirely mistaken in his conclusions. If there is any injustice in this case, it is on the part of the people of Canada against the people of the United States. If the people of Canada were wise for themselves they would afford every facility and provide every encouragement for the inventors of the United States securing patents and introducing improvements among them. We hope Mr. Cartier, and those who voted with him to defeat this bill, will investigate the subject again without prejudice and partiality. If they do so, we are confident they will change their opinions and become convinced that their late action has not been for the good of Canada, because every new improvement introduced into it, no matter where it comes from, is a general benefit to the people.

The Golden Humbug.

One of the greatest deceptions ever practiced upon our people has just been exploded. Land speculators and other characters had propagated the most alluring reports regarding a new El Dorado, called "Pike's Peak," in Western Kansas, where gold was to be found in quantities far exceeding the celebrated placers of California. Not only hundreds but thousands of poor infatuated mortals were attracted from all parts of our country to try the new diggings, and scraping all the ready cash they could muster, proceeded by all kinds of vehicles to the promised land. Deceived mortals! instead of gold they found the sulphuret of iron, starvation and land sharks, and have now returned, to use a vulgar expression, "completely thinned out."

Phosphorescence.

It is related of Christiana, the daughter of Linnæus, that while she was walking in her father's garden in the evening of a hot and brilliant summer's day, now and then watering some favorite plants with her *arrosoir*, her attention was arrested by flashes of light which were emitted by some flowers of nasturtium. Coleridge the poet thus alludes to it:—

> "Tis said, on summer's evening hour
> Flashes the golden-colored flower
> A fair electric flame."

Strolling at twilight or in the evening by the hedge-row or along the field-path at this season of the year, especially over the sandy soil of the Surrey hills (England), you will see little sparkling gems illuminating the banks which divide the fields. Should you be fortunate enough to entrap one of these living jewels it will be found on examination by daylight to have legs and wings if it be a male, but no wings if it be a female; it is, in fact, an insect which naturalists have named the *Cicindela*, or "Sparkler;" you doubtless have heard of it by the familiar name of the glow-worm, more correctly glow-beetle.

Should you be sailing down the Mersey, or merely crossing that stream in the ferry-boat from Liverpool to Birkenhead in the autumn (particularly if the evening be such as to overshadow the harvest moon), you will be delighted and surprised to notice that as the vessel cleaves the water it will appear to be floating "on the realms of light." A closer examination of the water shows it to be charged with minute infusorial animalcules (*Pyrosoma Atlantica*), only to be discovered by a microscope; every one of them however glows with light.

Down some of the lead mines in Derbyshire the miners throw out with the ore a pretty greenish-blue crystal stone, like bits of broken glass; this is called "Fluor Spar." There is such an abundance of it that some of the operative chemists sell it at a few pence per pound. If you make this spar warm over a flame (holding it with a piece of wire), and then take it into a dark room, it will shine with a beautiful blue, light. While in the dark room be provided with a few lumps of sugar, of such shape as you can divide between your hands. Now break them and a flash of light will be visible; rub the lumps of sugar together and there will be more light; or if you are provided with two rounded whitish flint pebbles, such as boys call milk-stones, you will by grating them strongly together see a brilliant reddish light.

On many of the commons in England, and by the sides of numerous streams, willow-trees are allowed to grow here and there. One more venerable than the rest has, perhaps begun to decay, and you may help yourself to pieces of its trunk without the saw or axe. Country boys call it "touch-wood," for, if a spark fall on it, it will burn like tinder. When the day has been unusually bright and warm, this touch-wood, if taken into a dark place, will shine like a glow-worm.

In that warm region of the earth where Cayenne pepper grows, where the coffee-plant flourishes, and the sugar-cane is an immense grassy weed, innumerable insects may be seen at sunset skitting and dancing in the air, as we see gnats do in this country. Every one of these little creatures, called in that country "fire-flies," teems with light, and so brilliant are they that three of them placed under a glass on a dark night would give light enough to enable you to read the Scientific American.

The *Ignis-fatuus* or "Will-o'-the-wisp," has afforded the poets and romance-writers many a mythical theme, such as the following:—

> "On distant swampy heath I see
> A Will-o'-the-wisp!—ah! luckless he,
> Who to next village bends his way!
> That glimpse will lead him far astray."

This luminous vapor is frequently seen during the summer months hovering over marshes, low meadows, in the vicinity of stagnant ponds; the slightest breath of air causes it to flit and move as if it had life.

The luminous willow-trees, together with Will-o'-the-wisp, have been the foundation of many a ghost-story as told by some luckless wight, who, after seeing a sweetheart home, has had to return through the meadows to his native hamlet.

Now all these curious lights are attributable to one uniform cause, namely, phosphorescence. The light thus visible differs from the sun's light, and from the light emanating from combustion, in this one particular, that there is no heat with it. Hence phosphoric light or phosphorescence is *pure light*, as pure as the light of the moon and stars; while ordinary light may be considered to be adulterated with heat and chemical rays, which produce effects independent of the pure principle of phosphorescence. S. Piesse.

[The author of the above is like Handel's harmonious blacksmith who brought music out of an anvil; for he puts an article dry as dust into his poetic crucible, and it sublimes in rainbow colors.—Eds.

Inflammable Iron.

Messrs Editors:—On page 308 of the present volume of the Scientific American appeared an article on "Iron Gunpowder," with comments editorial. As pertinent to the inquiry let me add that the iron turnings which remained in the casks from which my balloon had been inflated, took fire spontaneously 36 hours after the fluid had been decanted from them. Afterwards I rinsed them well with several waters, but nevertheless spontaneous combustion would ensue unless I kept them covered with water. On examining these partly dissolved turnings I found them very granular, very porous, and of course partly, *i. e.*, superficially oxydized. After all the precaution taken and the disposition still remaining to combustion, I was irresistibly led to the conclusion that a chemical action took place not fully explained in the manuals of chemistry. Your correspondent's term of "iron powder" occurred to me at the time. The iron turnings in this condition always proved more effecacious in the decomposition of water than an equal weight of new and unused iron. This would be an anomaly of the rule laid down in the oxydation of iron and its due developement of hydrogen from the water thus decomposed. It is well known that equal weights of iron-filings and flowers of sulphur buried several feet deep in the ground will in a few days spontaneously ignite and produce what is termed "an artificial earthquake." John Wise,

Lancaster, Pa., May, 1859.

Wonderful Lighthouse Improvement.

Our respected cotemporary, the Philadelphia *North American Gazette*, in describing the effects of dioptric lens in lighthouses, and how the rays are thrown out only in one direction, says:—"The expedient has been devised, in order to direct the light upon every point of the horizon successively, of making the lighthouse revolve on its center in a given time, which, varying for each lighthouse, serves to distinguish each of them from the others." Just think of that valuable improvement—revolving the entire lighthouse instead of stupidly revolving the light!

At a late meeting of the Liverpool Docks and Harbor Board, it was resolved to erect a telegraph on the docks (which extend for nine miles along the coast), to be employed in the same manner as the police telegraph is used in some of our cities. Eight sets of Morse's instruments, eight tuns of iron wire, conductors and 5,000 glass insulators have already been ordered by the engineer of the company. It therefore appears that the American recording telegraph has been adopted in preference to all others for the purpose stated.

Electric Gun.—An English inventor claims to have produced a gun discharging sixty shots per minute, with precision, with but little report, and without smoke, by *electric decomposition of water*.

Notes and Queries

*** Persons who write to us, expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz., to furnish their names, otherwise we cannot place confidence in their communications.

F. R. R., of N. Y.—Common pitch is about as good a cement as you can use for the seams of an aquarium. It will not color the water, and contains no element injurious to "the monsters of the vasty deep."

A. J. S., of Minn.—Oil paint is the best for covering either brick or frame buildings. Chimneys are generally built of too great a diameter. They should be of the same width nearly from the base to the top, and made as smooth as possible inside.

A. B. S., of Ind.—A submarine cable covered with canvas and gutta-percha, and then enclosed in a lead tube, is not new. Such a cable was illustrated in Vol. III. of the Scientific American.

J. J. D., of N. Y.—We have frequently replied to correspondents in this column, referring them to J. Wiley, bookseller, for Smee's work on electro-metallurgy. We dislike to keep repeating the same thing over and over.

S. R. B., of N. Y.—If your fastener was not new at the time you applied for the patent, of course your patent would be invalid. The mere change in the use of an invention does not render it patentable.

J. L., of Ky.—Your letter does not present any proof for or against Professor Cleveland's opinions and experiments on the power exhibited by water-wheels when running by night or day. Your article relates to the capacity of the ear in being able to detect irregularities in the motion of machinery, by sound, when the eye cannot detect it. No person, we think, will dispute this; but it does not touch the question at issue. Experiment only can decide such a mooted point.

J. C. O., of Va.—If a large ball and a small one are set in motion in opposite directions and meet together, the small one will be broken or stopped and carried before the large one, which will have as much of its momentum destroyed as was in the small ball. We really wonder at your other question. As stated, it simply means that if you were to travel as fast as the earth rotates, starting at noon, would it be noon wherever you went. There could be but one answer to such a question.

H. W. B., of N. Y.—Brazing with hard solder is done with the blow-pipe. Glass is drilled by a very hard steel point, and some turpentine to give adhesion to the tool. There are two kinds of steam-gages besides the mercurial one. One is operated by the steam acting on a piston that moves an elastic diaphragm; the other by the steam pressing on a curved metallic spring.

J. R., of La.—A cast-iron cylinder head should always be made with an increased thickness of metal towards the circumference, because the strain evidently comes upon it in the same manner as upon a uniformly loaded beam secured in a buttress.

J. L. G. W., of Mich.—White wax gently heated, then mixed with warm alcohol and stirred for a long time, makes a very pale transparent varnish for paintings. Canada balsam, dissolved in turpentine, makes a colorless varnish, nearly transparent when dry.

H. M., of N. Y.—The experience of several persons who have used overshot and good turbine wheels is in favor of the latter, and especially for high falls such as yours.

E. R. C., of C. W.—By covering your white metal with a very thin p ellicle of mercury, you can deposit pure silver upon it with a Smee's battery.

F. H., of N. H.—To make a nice table-sauce take an ounce of black pepper, half an ounce of allspice pounded fine, an ounce of salt, half an ounce of scraped horse-radish, and the same of eschalots, peeled and quartered; put these ingredients in a pint of walnut or mushroom catsup, let them steep for a fortnight, and then strain off. It is likewise a very pleasant flavoring for gravies.

Y. Y., of C. W.—It requires 155 cubic feet of atmospheric air to burn 1 lb. of coal, allowing every atom of the oxygen to enter into chemical union; but as this cannot be correctly effected in grates or furnaces, about 250 feet generally pass through the fire in burning one pound of coal. A cubic foot of air weighs .075 lbs., and it takes about two and two-third pounds of oxygen to one pound of carbon—pure anthracite coal, Wood requires much less oxygen from the atmosphere in burning, because it contains about 36 per cent. in its composition, while coal contains a very small amount.

W. T. C. D., of Md.—We do not know whether M. De Sora's egg-producing project has ever been satisfactorily tested in our country or not. It is our opinion that hens cannot be profitably fed on fresh flesh meat throughout the year, for the purpose of obtaining a continual supply of eggs. We are not in possession of any recorded experiments for testing this question, and merely express our opinion.

B. C. J., of Texas.—You labor under a delusion if you suppose that the product of a patent machine is also secured by the patent. This is impossible, as in such case boards planed by a patented machine or cloth made by a patent loom could not be sold without the consent of the patentee.

T. N. G., of Ohio.—You could not get a patent for the combination you set up, as it is not legitimate. The combination of a cutting apparatus and a raking attachment to a reaper could not be secured by patent, as one is not actually dependent upon the other for its perfect mechanical operation. It is true that they are mechanically combined in one machine for purposes of convenience, but they operate by an independent mechanism; therefore such a claim as you set up cannot be obtained. More than this, you cannot cover these two devices under the issue of one patent. You would need to make two distinct applications, and pay two patent fees.

© 1859 SCIENTIFIC AMERICAN, INC

A. C., of Me.—You can mark your sheep a blue color with the following fluid: Take one ounce of pulverized indigo and place in a close earthenware or glass vessel containing a pint of dilute urine, and allow it to steep for six days in a warm place, when it will have assumed a deep fast blue color, fit for use. Employ a soft brush to put it on, and allow it to dry before the animals are turned out on the pasture.

W. S. L. of Ala.—The best remedy for the distemper in dogs is to make an ointment of sulphur and unsalted lard; rub it well in all over the dog once a day, and it will soon recover.

W. A. H., Jr., of R. I.—Your new cistern renders the rain water hard, because some of the cement is taken up by the water and held by it in solution. When the cistern is emptied a few times this action will cease, as a scum will gather on the surface of the cement and prevent the water from absorbing the lime,

L. D. S. of Milan, O.—The sulpho-cyanide of silver is the best electro-plating fluid. It is made by adding sulpho-cyanide to nitrate of silver, and then dissolving the precipitate in an excess of the sulpho-cyanide. It can be used with a silver positive pole and a single battery.

F. J. M., of Mass.—The engineers of the navy have higher wages when on active duty than when their steamers are out of commission; but their pay is constant. We do not think their life is one to be envied, but it would not be disadvantageous to you as a school of discipline.

E. P. B. of Me.—Mr. Conger's work on Water-wheels has not yet been published. We think it would meet with a very favorable reception at present.

W. T. C. of Md.—Your pipe should have an inclination of about one foot, and be laid at starting point within two feet or so of the bottom of the place where it receives the water. The amount of water discharged from it will depend on the pressure of the water in the place from which it takes it.

S. H. M., of Phila.—Bourne's Catechism of the steam-engine should be studied by you carefully. You will find it in some of the stores of your city. The best work on the steam-engine is Tredgold's, published in London, and very dear. Hodge on the steam-engine is a very good work; cost about $10.

A. H. of Vt.—See the article on "Asphalt Roofing," published on page 245 of the present volume of the Scientific American.

C. M. K. of Penn.—We do not know anything about the defunct "United States Engineer."

J. E. K. of Pa.—The eyes employed in birdstuffing are made of glass and can be procured at fancy bead stores.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, June 4, 1859:—

E. W. D., of Mass., $20; W. S. R., of S. C., $30; H. W. B., of R. I., $25; J. McC., of N. Y. $20; S. F. Van C., of Cal., $30; W. & R., of Ill., $25; J. F. W., 2d., of N. Y., $30; E. B., of N. Y., $50; N. H., of N. Y., $25; H. A., of N. Y., $55; W. G. W., of Mass., $35; W. P., V., of Me., $45; J. H. W., of Md., $100; G. T. C., of Ill.; $20; J. M. B., of Me., $25; L. & W., of Miss., $30; J. A. P., of Mich., $25; W. S. & Co., of Ky., $50; H. E., of Ill., $25; H. K. S., of Mass., $30; B. M. D., of Ill., $30; P. J. C., of Ct.. $20; D. L. W., of —, $30; W. G., of N. Y., $30; E. O., of Mass.. $35; S. P. La D., of Ill., $55; E. B. W., of N. H., $55; W. T. C., of N. J., $542; E. McK., of O., $25: O. L., of N. Y., $12; B. & C., of Mich., $10; L. C., of Ala., $25; V. K. D., of Ill., $25; W. R., of N. H., $25; S. G. R., of Mass., $55; W. F. P., of Pa., $30; O. P., of N. Y., $25; D. & C.. of Ct., $30: P. S., of N. Y., $30; T. & B., of O., $25; D. Q., of N. H., $30; C. & B., of Ct., $25; J. W. H., of N. C., $60; G. & M., of Ill., $35.

Specifications drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, June 4, 1859:—

W. S. & Co. of Ky. (2 cases); D. B. R. of Ill.; L. C. of Ala.; J. W. of Va.; P. J. C. of Ct.; H. P. of Pa.; O. P. of N. Y.; E. O., of Mass.; S. F. Van C. of Cal; C. & B. of Ct.; H. E. of Ill.; B. B. of N. Y.; D. W. of N. Y.; H. W. B. of R. I.; W. & R. of Ill.; F. C. S. of N. Y.; S. P. La D. of Iowa; N. H. of N. Y.; W. G. W. of Mass.; C. F. of O.; P. F. F. of Ill.; J. A. P. of Mich.; R. E. of N. Y.; W. F. P. of Pa.; W. R. of N. H.; T. & B. of O.; O. L. of N. Y.; J. H., Jr., of N. Y.

IMPORTANT TO INVENTORS.

AMERICAN AND FOREIGN PATENT SOLICITORS.—Messrs. MUNN & CO., Proprietors of the Scientific American, continue to procure patents for inventors in the United States and all foreign countries on the most liberal terms. Our experience is of thirteen years' standing, and our facilities are unequaled by any other agency in the world. The long experience we have had in preparing specifications and drawings has rendered us perfectly conversant with the mode of doing business at the United States Patent Office, and with most of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office. 37 Park Row, New York. We established, over a year ago, a Branch Office in the City of Washington, on the corner of F and Seventh streets, opposite the United States Patent Office. This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office, are cordially invited to call at our office.

We are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business we have offices at Nos. 66 Chancery Lane, London; 29 Boulevard St. Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we may safely say that three-fourths of all the European patents secured to American citizens are procured through our Agency.

Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the principal office or either of the branches.

The annexed letters from the last two Commissioners of Patents we commend to the perusal of all persons interested in obtaining patents:—

Messrs. Munn & Co.—I take pleasure in stating that while I held the office of Commissioner of Patents, more than one-fourth of all the business of the office came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.

Immediately after the appointment of Mr. Holt to the office of Postmaster-General of the United States, he addressed to us the subjoined very gratifying testimonial:—

Messrs. Munn & Co.—It affords me much pleasure to bear testimony to the able and efficient manner in which you discharged your duties as Solicitors of Patents while I had the honor of holding the office of Commissioner. Your business was very large, and you sustained (and, I doubt not, justly deserved) the reputation of energy, marked ability, and uncompromising fidelity in performing your professional engagements.

Very respectfully, your obedient servant.

J. HOLT.

Communications and remittances should be addressed to MUNN & COMPANY, No. 37 Park-row, New York.

THE ART OF HANDRAILING illustrated and Simplified—By H. C. COEN, Architect and Builder, deceased.—A simple and accurate method of obtaining the face-mold, and its application shown, with lines laid down in a clear and plain manner, capable of being understood by any practical workman. The advantages claimed by this system are these:—first, having less lines than any work yet published; the face-mold struck with compasses; wreaths cut square through, and joints made at once, at right angles with the surface of the plank; no falling-molds necessary, and a saving in material and labor of at least 50 per cent. By mail free. Price, $5. Address FRANKLIN COEN, box 411, Wheeling, Va. 1*

1000 AGENTS WANTED—FOR PARTICULARS send stamp. C. P. WHITTEN, Lowell, Mass. 39 13*

COBURN'S EXTRA OIL—FOR MACHINERY and Burning; warranted first-rate (never gums, will burn in night lamps, &c.) has given satisfaction for ten years during which we have sold it.

JOHN W. QUINCY & CO.,
16 13e5w* No. 98 William st., New York.

HARRISON'S GRIST MILLS—20, 30, 36 AND 48 inches diameter, at $100, $200, $300 and $400, with all the modern improvements. Also, Portable and Stationary Steam Engines of all sizes, suitable for said Mills. Also, Bolters, Elevators, Belting, &c., &c. Apply to S. C. HILLS, 12 Platt st., New York.
29 e3w

BOLTS, RIVETS, NUTS, WASHERS, Square Head Wood Screws, and Chain Links, manufactured from superior quality of iron, suitable for machinists, millwrights, car-builders, miners, agricultural implements, &c. HOOPES & TOWNSEND, Buttonwood st., near Broad, Philadelphia. 32 6eow*

STEPHENS' DYES FOR WOOD—FOR dyeing inferior woods to imitate the valuable kinds. Samples and prospectuses sent everywhere on receipt of 15 cents in postage stamps. Stephens' Liquid Drawing Ink for Engineers, Artists and Designers, 12 cents per bottle. Sold by stationers and artists' colormen. HENRY STEPHENS, Chemist,
35 4eow* No. 70 William street, New York.

THE SALEM WIND TURBINES ARE CONstructed of 45 and 65 feet in diameter, having areas of 1,500 and 3,000 square feet, and developing powers of 25 and 100 horses, under perfect regulation. Will stand up to a violent gale unreefed, with scarcely a vibration. A 40-feet turbine attached to a flouring-mill has been in successful operation on the praries for nearly three years, and one 45 feet in diameter is now in full work at Salem. Can grind from 40,000 to 50,000 bushels of corn annually. Turbines from one to six horses' power are also constructed upon the same principle. A card, with illustration, sent on application by mail to the Treasurer of the Turbine Manufacturing Company, Salem, Mass. 35 4teow*

STEAM WHISTLES—ALL SIZES OF THE most improved patterns constantly on hand. Brass Lift and Force Pumps, (single and double-acting) Ship Pumps, &c., a full assortment. Manufactured by

HAYDEN, SANDERS & CO.,
16 13 eow* 306 Pearl st., New York.

STEAM-ENGINES AND BOILERS.—THE Subscribers are manufacturing a superior style of engine which is furnished with an extra amount of boiler and fixtures to match, at the following extremely low prices:—10 horse-power, $700; 16 do., $980; 25 do., $1,375: 35 do., $1,875; 50 do., $2,650; 70 do., $3,650. These engines are in use in most of the middle, western and southwestern States. Descriptive catalogues furnished on application. D. A. WOODBURY & CO., Rochester, N. Y. 33 3tem*

A SUBSTITUTE FOR LEAD PIPE.—A New and Valuable Article, viz., a Semi-Elastic Pipe or Hose which can be used with pumps of any kind, for suction, forcing, or conducting water in any and every place where pipe is required. Its properties are:—It imparts no deleterious effects to the water, nor in any way effects it unpleasantly after a few days' use; it is sufficiently elastic to be bent into curves, and it is unaffected by heat or cold: it will not burst if water is frozen into it; it is not injured by exposure to the sun or atmosphere; it is composed of ingredients indestructible, except by fire. Samples of it have been tested by use for three years, without the least apparent decay, and it can be made to bear pressure as high as 400 lbs. to the square inch. Price not far from that of lead pipe. Circulars with prices and particulars furnished by the manufacturers. BOSTON BELTING COMPANY, corner of Summer and Chauncey streets, Boston, Mass. 31 13*

TO INVENTORS AND PATENTEES.—A. B. ELY, Counsellor-at-Law, Traveler Building, Boston, Mass., will give his personal attention and experience of fifteen years to consultations and trials in all matters relating to the law of patents, interferences, infringements, &c. 38 13*

MARINE RAILWAYS.—THE SUBSCRIBER, Marine and Naval Architect, is prepared to build Marine Railways and Dry Docks, and to furnish Steam and Horse-power Engines, Chains, Castings, &c., on short notice and on reasonable terms. Satisfactory reference given. Address H. I. CRANDALL, New Bedford, Mass. 38 13*

THE SCIENTIFIC AMERICAN SIGNS, for Munn & Co., were painted by Ackerman & Miller. Refer to the Commercial Agency, McKillop & Wood, Park Buildings. All communications for signs, banners, or other ornamental work, attended to with dispatch. ACKERMAN & MILLER, 101 Nassau st., next to the New York Herald Office. 27 3m*

SUN DIALS.—MANUFACTURED BY W. W. WILSON, Pittsburgh, Pa., of new and highly improved patterns of every latitude; a suitable cast column is furnished with them. Every garden, lawn and plantation should have one, being ornamental, accurate and useful. Address the maker for circular of prices, description, &c. 38 3*

CROZIER'S PATENT BARREL MACHINERY—Five hundred barrels can be made in a day by one set of machines. For machines or rights for State or county, apply to PETER WELCH, Oswego, N. Y., or to the agents, SLIPPER & GOADBY, No. 2 Broadway, New York. 37 4*

CROSSETT'S PATENT STAVE CUTTER—Patented July 1, 1844: re-issued March 2, 1858; renewed and extended June 26, 1858.—The above mentioned machine is warranted to cut more and better staves than any other machine in the United States, and is the most simple, cheap, and durable. I hereby caution all persons against using and vending said machine (the main features of which consist in the stationary knife and vibratory bed-piece) without the legal right to do so. Offenders will be dealt with according to law. All persons wishing an interest in the extended term of said patent can obtain it by addressing the undersigned at Joliet, Ill.
38 6c GEO. I. CROSSETT, Assignee.

WROUGHT IRON PIPE FROM ⅛ OF AN inch to six inches bore; Galvanized Iron Pipe (a substitute for lead), Steam Whistles, Stop Valves and Cocks, and a great variety of fittings and fixtures for steam, gas, and water, sold at wholesale and retail. Store and Manufactory 76 John, and 29, 31 and 33 Platt st., New York. JAMES O. MORSE & CO.
31 13

A FIRST-CLASS PATTERN-MAKER OF long experience in the business, and having a knowledge of practical drawing, is desirous to obtain good and permanent employment, either to work at the bench or take charge of a shop; is competent, if necessary, to assist in drawing. For references, address J. H., Providence, R. I. 38 3*

GUILD & GARRISON'S STEAM PUMPS for all kinds of independent steam pumping, for sale at 55 and 57 First street, Williamsburgh, L. I., and 74 Beekman street, New York.
32 6m GUILD, GARRISON & CO.

WOODWORTH PLANERS—IRON FRAMES to plane 18 to 24 inches wide—at $90 to $110. For sale by S. C. HILLS, 12 Platt street New York. 27 tf

WARREN'S TURBINE WATER WHEEL—Improved and patented by A. Warren and E. Damon, Jr. The vast number of these wheels now in operation, and the invarible success attendidg them, is the best evideuce of their advantages over ordinary wheels in the economy of water power. The American Water Wheel Co. will send to applicants (enclosing two stamps) their pamphlet, containing engravings of turbines and a treatise on hydraulics. Address, A. WARREN, Agent, No. 31 Exchange st., Boston Mass.
32 9t*

A RARE CHANCE.—FOR SALE, AT A GREAT bargain, part or the whole of the Gravel Foundry and Machine Shop, Kenosha, Wis., together with the sole right for the States of Wisconsin and Illinois, to manufacture N. Leonard's Patent Seamless Thimble Skanes for Wagons, the most saleable skanes in the world. Part cash and part other property. For full particulars address J. COUNCILLOR, Esq., Rahway, N. J., or the proprietors. LANGE & DOYLE,
39 4* Kenosha, Wis.

PHOTOGRAPHY—COMPLETE APPARATUS for $25, all of the best make, sent with instructions for use (the process is very simple) to any address. Invaluable to inventors, engineers, and others, in copying drawings, models, &c. C. J. FOX, 681 Broadway, New York. 39 2*

WHEELER & WILSON'S SEWING MACHINES—Office, No. 505 Broadway, New York. "They are without a rival."—Scientific American. Send for a circular. 39 4

5000 AGENTS WANTED—TO SELL FOUR new inventions. Agents have made over $25,000 on one—better than all other similar agencies. Send four stamps and get 80 pages particulars, gratis.
39 13* EPHRAIM BROWN, Lowell, Mass.

HARRISON'S 20 AND 30 INCH GRAIN Mills constantly on hand. Address New Haven Manufacturing Co., New Haven, Conn. 27 13

WHITMAN'S TURBINE WIND WHEEL.—Territorial or shop rights for sale. For particulars, inquire of the inventor, E. WHITMAN, at South Abington, Mass. 32 12*

RIVETS.—EVERY DESCRIPTION OF RIVETS: Boiler, Tank, Safe, Belt, Hose, Shoe, and Tinman's, black and tinned, constantly on hand. Socket bolts of any size furnished on short notice.
38 13* TABER & GRINNELL, New Bedford, Mass.

CORLISS' PATENT STEAM ENGINES—On application, pamphlets will be sent by mail containing statements from responsible manufacturing companies where these engines have been furnished, for the saving of fuel, in periods varying from 2½ to 5 years. (The "James' Steam Mills," Newburyport, Mass., paid $19,734 22, as the amount saved in fuel during five years. The cash price for the new engine and boilers was but $10,500.) These engines give a perfectly uniform motion under all possible variations of resistance. Two hundred and fifty, varying from about 20 to 500-horse power, are now in operation. Boilers, shafting, and gearing.

CORLISS STEAM ENGINE CO.,
15 26* Providence, R. I.

BOILER FLUES FROM 1 ¼ INCH TO SEVEN inches outside diameter, cut to any length desired, promptly furnished by JAMES O. MORSE & CO., 76 John st., New York. 31 13

PATENT COMPOSITION BELTS—PATENT PACKING—The Company have on hand and are ready to supply all orders for their superior Composition Machine Belting. They are proof against cold, heat, oil, water, gases, or friction, and are superior to leather in durability, and much cheaper in cost. The composition gives to these belts uniform durability and great strength, causing them to hug the pulley so perfectly that they do more work than any other belts of the same inches. The severest tests and constant use in all sorts of places during the last 14 months has proved their superiority, and enables the Company to fully guarantee every belt purchased from them. Manufacturers and mechanics are invited to call, examine, and test these belts. The Patent Packing for planed joints is in every way superior to any other article ever used for that purpose. A liberal discount allowed to the trade. "New York and Northampton Belting and Hose Co.," E. A. STERN, Treasurer, 217 Fulton st., New York. 30 13

OIL! OIL! OIL!—FOR RAILROADS, STEAMERS, and for machinery and burning. Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer, F. S. PEASE, 61 Main st., Buffalo, N. Y.

N. B.—Reliable orders filled for any part of the United States and Europe. 27 13

STEAM ENGINES, STEAM BOILERS, Steam Pumps, Saw and Grist Mills, Marble Mills, Rice Mills, Quartz Mills for gold quartz, Sugar Mills, Water Wheels, Shafting and Pulleys. The largest assortment of the above in the country, kept constantly on hand by WM. BURDON, 103 Front street, Brooklyn, N. Y. 27 tf

MACHINE BELTING, STEAM PACKING, ENGINE HOSE.—The superiority of these articles, manufactured of vulcanized rubber, is established. Every belt will be warranted superior to leather, at one-third less price. The Steam Packing is made in every variety, and warranted to stand 300 degs. of heat. The hose never needs oiling, and is warranted to stand any required pressure; together with all varieties of rubber adapted to mechanical purposes. Directions, prices, &c., can be obtained by mail or otherwise, at our warehouse. NEW YORK BELTING AND PACKING COMPANY. JOHN H. CHEEVER, Treasurer. Nos. 37 and 38 Park Row, New York. 27 13

THE ENTIRE OR ANY PORTION OF THE right to Gardiner's Combined Chair and Lounge for sale. Illustrated in No. 37 of the present volume of the Scientific American. Apply to F. J. GARDNER, Washington, N. C. 37 8*

THE AUBIN VILLAGE GAS-WORKS WERE erected last year by one city and several village companies to their entire satisfaction. Towns having only fifty consumers of gas can rely on the stock-paying dividends; and if one hundred, 10 per cent will be guaranteed. For references, apply to the Company, No. 44 State street, Albany, N. Y. 28 tf

CARY'S CELEBRATED DIRECT ACTING Self-Adjusting Rotary Force Pump, unequalled in the world for the purpose of raising and forcing water, or any other fluid. Manufactured and sold by

CARY & BRAINARD, Brockport, N. Y.

Also for sale by J. C. CARY, 240 Broadway, New York City. 37 tf

FELT FOR STEAM BOILERS, PIPES, ship sheathing, marble-polishers, jewellers, and calico printers' use, manufactured by JOHN H. BACON. Winchester. Mass. 31 26*

WELLS' PATENT IMPROVED CIRCULAR Saw Mills, acknowledged the best in use. Also, Portable and Stationary Steam-Engines of superior excellence; Water Wheels, Mill Gearing, &c. Address H. WELLS & CO., at their old stand, Florence, Hampshire county, Mass. 35 6*

IRON PLANERS AND ENGINE LATHES of all sizes, also Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address "New Haven Manufacturing Co., New Haven, Conn." 27 13

HOYT BROTHERS, MANUFACTURERS OF patent-stretched, patent-riveted, patent-jointed, Oak-Leather Belting; Store, 28 and 30 Spruce street. Manufactory, 210, 212, 214 and 216 Eldridge st., New York. A "Treatise on Machinery Belting" is furnished on application, by mail or otherwise—gratis.
29 12*

LARD OIL MANUFACTURERS—MESSRS. WM. SKENE & CO. manufacture purified Lard Oil of the best quality, for machinery or burning, in Bullett st., four doors below Main, Louisville, Ky. 25tf

BUTCHER'S IMPERIAL CAST STEEL FILES—The subscribers keep constantly on hand a very large assortment of the above celebrated files, which are acknowledged to be unequaled in quality, and to which the attention of railroad companies, engineers, and machinists is invited.

BARTON & SCOTT,
25 26* No. 18 Cliff st., New York.

A MESSIEURS LES INVENTEURS—Avis Important.—Les inventeurs non familiers avec la langue Anglaise, et qui prefereraient nous communiquer leurs inventions en Francais, peuvent nous addresser dans leur langue natale. Envoyez nous un dessin et une description concise pour notre examen. Toutes communications seront recues en confidence.

MUNN & CO. Scientific American Office, 37 Park Row, New York.

Zur Beachtung für Erfinder.

Erfinder, welche nicht mit der englischen Sprache bekannt sind, können ihre Mittheilungen in der deutschen Sprache machen. Skizzen von Erfindungen mit kurzen, deutlich geschriebenen Beschreibungen beliebe man zu addressiren an

Munn & Co.,
37 Park Row, New-York.

Auf der Office wird deutsch gesprochen.

© 1859 SCIENTIFIC AMERICAN, INC

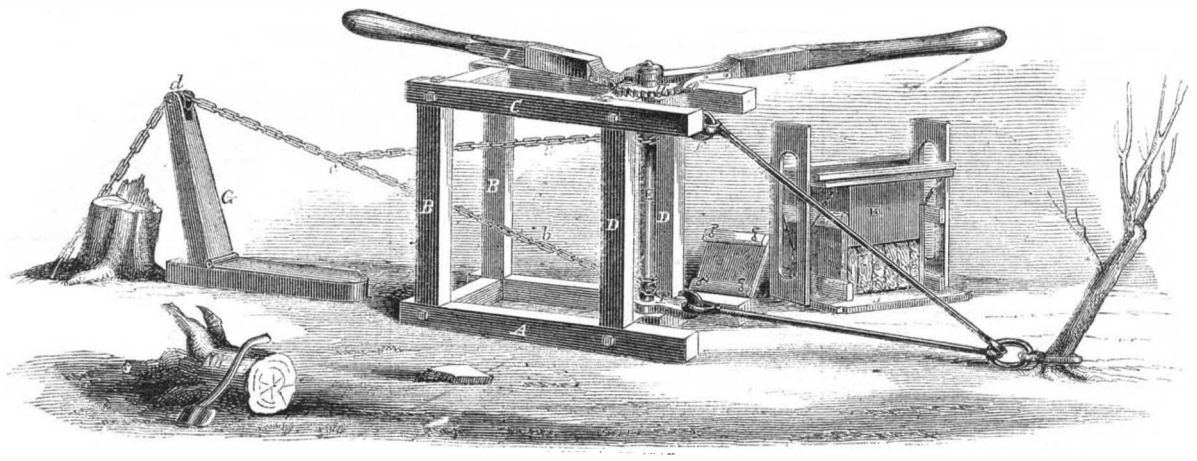
Science and Art.

Improved Lever Power.

The engraving below represents a machine or combination of mechanism for the exertion of great power, and it can be used to pull locomotives and cars on the track when off, or to pull up stumps or stones, or moving houses, or as a press for cider, hops, hay, cloth and cotton, or, in fact, wherever a lever power of great force is required, this will be found an advantageous and successful device.

It is represented as extracting a stump, the frame, A B C D, has a vertical shaft, E, in its back part, to which are secured two hooks, F P, the shaft, E, passing through the shanks of F and P, from these hooks iron rods enable the whole frame to be firmly anchored to any object. To E two chains are attached, one, *a*, at its upper and the other, *b*, at its lower end. They are both connected at a point, *c*, and pass over a pulley, *d*, on the simple frame, G, to the stump that is to be extracted. On the top of E, above the frame, a ratchet-wheel, H, is placed, and two levers, I, capable of moving on and around E in one direction, are prevented from doing so in the other, by a spring dog, *e*, catching into the teeth of the ratchet. By the great difference in the distance of the periphery of E from its centre, and the periphery of the arc of the circle, or the circle described by either lever, I, great power is obtained when operated by a man or animal of draft.

KENNY'S LEVER POWER.



Some wonderful things have been done at Milford, N. H., with this machine. We have it on the authority of the *Republican*, and many respectable citizens of that place, that the inventor, on one occasion, "attached it to a train of fourteen loaded cars, with the brakes all down, and some of the hindmost cars with the wheels trigged, but when the machine started, the cars moved by a power perfectly irresistible. He also hitched it to a locomotive and tender, in Nashua, weighing about 41 tons, on an up grade of 25 feet to the mile, with a sanded track, and having on 70 pounds of steam; and three persons on the levers moved it right along without any trouble whatever."

To convert it into a press, the frame, J, is placed on the end, B, of the large frame, and the chains of the follower, K, are attached to the chains, *b c*, and by these simple means an efficient and powerful press is obtained. It can be used on dry or damp ground as it is not likely to settle, and may be placed upon uneven ground; in every way it is an excellent device—cheap, simple and strong.

The inventor is Geo. Kenny, of Milford, N. H., and he will be happy to give any further information upon application. The patent is dated April 19, 1859.

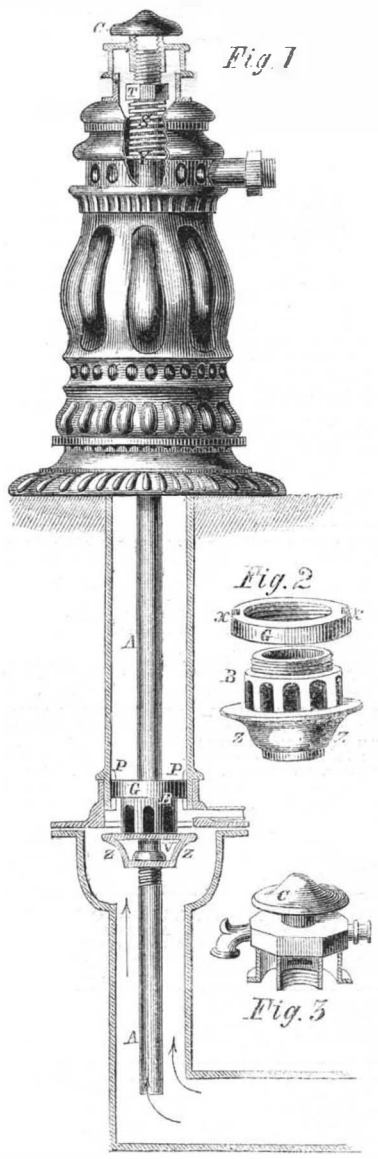
Astronomical Discovery.

It is announced with no inconsiderable amount of exclamation points, in a circular issued by the Rev. Wm. Isaacs Loomis, of Schuylerville, N. Y., that he has discovered another motion of the earth besides those of its axial and annual revolutions. His new discovery is, there are 365 (not 366 as is usually held) sideral days and a yearly *axial revolution*, which makes 366 days. Amid a great confusion of words the simple meaning of his great discovery amounts to this, that the earth makes a 365th more than an entire revolution on its axis every day, which at the end of 365 days makes one day or 366 in a year. Mr. Loomis would have done well to have gone a little deeper into this subject before he issued his circular. It is well known to astronomers that there is an acceleration of the sideral upon the mean solar day and that the aspect of the heavens is varied at different times of the year, those stars which at one time appeared on the meridian at midnight gradually gaining upon it until they are lost in the heavens at sunset to make their re-appearance in the East after a few months, hence at one period we behold one as the evening and at another period as the morning star.

Bryant's Hydrant.

The late movement in England for the provision of drinking fountains for the people, was first mentioned on this side of the Atlantic by the Scientific American, and we would again urge the civic authorities of our country, and the benevolent everywhere, to give a glass of water to the wayfarer, by providing cups and fountains or other water supplies at convenient and frequented places. We call attention to this subject because the hydrant represented in the accompanying engraving, invented by Joel Bryant, M. D., of Brooklyn, N. Y., is admirably adapted to have a faucet applied, and to be used as a drinking fountain as well as a hydrant.

Fig. 1 shows it with the street pipe in section, and a portion of the top broken away. The shaft, A, of the hydrant is made hollow, and is carried below the valve, B, so that, if the latter should be frozen, water could always be obtained by unscrewing A from its seat and lifting it. C is a cup that screws on



the top of A, and which may have a spring faucet (as in Fig. 3) attached, so that water to drink can be had without operating the valve, B, which is kept in its seat by the spring, S, pressing against the nut, T, on A, the lower end of S bearing on a partition, Y, and to operate the hydrant, the cup, C, is pressed down, when the water rushes quickly through the valve into the barrel, and so to the hose. The barrel of the hydrant is provided with guides, P, that fit in grooves, *x*, Fig. 2, in the band, G, to prevent the valve turning when A is turned to be screwed in or unscrewed. The band, G, also closes the waste pipe when the valve is open and opens it when the valve is shut. The valve, B, has a seat, Z, which bears against the under side of the barrel when closed, and when open, the water passes round it and through the openings in B, and so to the barrel of the hydrant.

The simplicity and security of operation of this hydrant must recommend it, and we should advise the corporation of the inventor's city, where they have just introduced water, to adopt it, if not generally, at least on the routes to and from the ferries, when during the coming summer, we will promise them many a blessing from the thirsty souls who mount the steep ascents from the ferry houses to their dwellings.

The patent is dated April 5, 1859, and the inventor will be happy to give any further information upon being addressed, No. 8 Clinton street, Brooklyn, L. I.

New Silk-Worm.—M. Guerin Menesville in a communication to the Academy of Sciences in Paris states that he has succeeded in naturalizing in France, a new variety of silk-worm from China, which feeds upon the leaves of the ailanthus tree. He also says that the silk made by it is equal in quality to that of the worm which feeds on the mulberry. If this is all correct, we may yet see silk cultivated very extensively in our country, as this tree grows well in our climate.

Friends of the Scientific American.—The prospectus of the new volume, enlarged series, is now ready, and we are anxious to get it into the hands of all our friends who feel willing to aid us in extending our circulation.

Preserved Butter.—A correspondent informs us that, in the wreck of the steamship Washington, which had been buried in sand and under water for seventeen years (we presume in one of the lakes), a crock of butter was found as good and sweet as the day it was made. He suggests that it would be easy to sink butter in a well or cistern to keep it fresh for use, as submerging it seems to act well in its preservation.

NEW Prospectus

OF THE

SCIENTIFIC AMERICAN.

ENLARGEMENT.

Volume I., Number 1—New Series.

The Publishers of the Scientific American respectfully announce to their readers and the public generally, that, on the first day of July *next* (1859), their journal will be enlarged and otherwise greatly improved; and at that time will be commenced "Volume I., No. 1, New Series," which will afford a more suitable opportunity for the commencement of new subscriptions than is likely to occur again for many years.

The form of the journal will be somewhat changed from what it now is, so as to render it better adapted for binding and preservation and instead of eight pages in each number as now, there will be *sixteen* and in a completed yearly volume the number of pages will be doubled to 832, or 416 more than now.

The Scientific American is published at a price which places it within the reach of all; and as a work of reference for the Workshop, Manufactory, Farm and House, hold, no other journal exceeds or even equals it in the value and utility of its information. Its practical recipes alone oft-times repay the subscription price ten-fold. Inventors will find it, as heretofore, the mirror of the Patent Office, and the reliable record of every claim issued weekly by the Office, the list being officially reported for its columns.

With the enlargement of the Scientific American, we shall be enabled to widen the sphere of our operations, omitting none of the features which now characterizes it, but adding many new ones, which will render the work more valuable to all classes of the community than it has heretofore, among which is the devoting of space to a Price Current, and a column or two to the Metal and Lumber markets, and such other branches of trade as may be interesting and useful.

The increased outlay to carry out our design of enlargement will amount to eight thousand dollars a year on our present edition; and in view of this we appeal to our readers and friends to take hold and aid in extending our circulation. Think of getting, at our most liberal club rates, a yearly volume containing about 600 original engravings and 832 pages of useful reading matter, for less than three cents a week! Who can afford to be without it at even ten times this sum?

Two Volumes will be issued each year; but there will be NO CHANGE IN THE TERMS OF SUBSCRIPTION, as the two yearly volumes together will be Two Dollars a Year, or One Dollar for Six Months.

CLUB RATES.

Five Copies, for Six Months.....$4
Ten Copies, for Six Months.....$8
Ten Copies, for Twelve Months.....$15
Fifteen Copies, for Twelve Months.....$22
Twenty Copies, for Twelve Months.....$28

Southern, Western and Canadian money or Post-offi stamps, taken at par for subscriptions. Canadian subscribers will please to remit twenty-six cents extra on each year's subscription, to pre-pay postage.

For all clubs of Twenty and over, the yearly subscription is only $1 40. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

When you order the Scientific American, be careful to give the name of the Post-office, County, and State to which you wish the paper sent. And when you change your residence, and desire your paper changed accordingly, state the name of the Post-office where you have been receiving it, and that where you wish it sent in future.

MUNN & CO., Publishers and Patent Agents,
No. 37 Park-row, New York.

© 1859 SCIENTIFIC AMERICAN, INC